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American SOCIOLOGICAL Review



Comparative Study of Deviations from Sexual Mores *Julia S. Brown*

Conflict of Attitudes in Marriage *A. H. Jacobson*

The Motivational Structure of Political Participation *W. S. Robinson*

The Present Status of Social Theory *Theodore Abel*

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Minority Group Attitude Expressions *W. B. Brookover and J. B. Holland*

A Formal Theory of Interaction in Social Groups *Herbert A. Simon*

Notes on Research • Official Reports • Book Reviews

Vol. 17

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No. 2

Official Journal of the American Sociological Society

Published in April . . .

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American SOCIOLOGICAL Review

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A COMPARATIVE STUDY OF DEVIATIONS FROM SEXUAL MORES *

JULIA S. BROWN

Iowa City, Iowa

IN every society certain patterns of sexual behavior are accepted as proper and approved ways of expressing sexual urges, while alternative forms of behavior are rejected. Members who act in accordance with the mores are rewarded by social approval, but individuals who deviate from the mores receive social censure or other more specific punishments.

In general, anthropologists interested in the mores have emphasized the conformity of behavior of members of simple societies and have been chiefly concerned with the manner in which the approved patterns are maintained and transmitted to later generations. The present study, however, stresses deviations from the mores and the means which societies employ to discourage and punish such nonconformity. In order to determine which forms of behavior are most generally forbidden, quantitative techniques are utilized to measure the frequency with which specific types of behavior are considered deviant by a sample of primitive societies, and to estimate the severity with which these forms of sexual behavior are punished. Specifically, the following problems are considered:

(1) The relative frequency with which specific types of sexual behavior are considered to be deviant by a number of societies, where frequency is defined as the percentage of the societies which tabu the behavior. For example, is adultery punished by more societies than is premarital indulgence?

(2) The relative severity with which various deviant sexual practices are punished. For example, is incest punished more severely than adultery by most societies?

(3) The degree of correspondence between frequency and severity of punishment. Are those forms of sexual behavior (e.g., incest or rape) which are tabued by most societies also the forms most severely punished?

(4) The degree of correspondence between the punishments accorded various deviant sexual practices by the same society. Do societies which punish one offense severely (e.g., adultery) also tend to punish other offenses severely (e.g., premarital indulgence)?

(5) The nature of the sanctions which support the mores. Under what circumstances do individuals punish offenders, and under what circumstances is punishment alleged to derive from supernatural sources?

COLLECTION AND SCOPE OF DATA

The major portion of the data for this study was collected in 1942 from materials catalogued by the Human Relations Area File, Inc., although additional information was subsequently secured from other sources.

A preliminary examination of the data resulted in the discarding of those societies

* The writer wishes to thank Dr. Manford Kuhn, Dr. David B. Stout and Dr. Clellan S. Ford for reading the original manuscript. Special acknowledgment is made of the extremely helpful and painstaking criticisms offered by Dr. George P. Murdock.

whose sexual mores were insufficiently documented. The remaining 110 societies which form the sample for the present analysis are listed below according to their geographical distribution.

Africa (20 societies)

Ashanti, Azande, Bena, Chewa, Chagga, Fez, Jukun, Kababish, Lamba, Lango, Masai, Mbundu, Nama, Rif, Siwans, Tanala, Thonga, Tiv, Venda, Wolof

North America (24 societies)

Cahita, Comanche, Copper Eskimo, Creek, Crow, Hopi, Kickapoo, Kutchin, Kwakiutl, Maricopa, Menomini, Naskapi, Natchez, Omaha, Ponca, Sanpoil, Surprise Valley Paiute, Taos, Tarahumara, Teton-Dakota, Tubatulabal, Yurok, Zuni

South America (24 societies)

Abipone, Alacaluf, Apinaye, Araucanians, Aymara, Barama River Caribs, Canella, Cayapa, Chapakura, Choroti, Colorado, Cuna, Guaikuru, Jivaro, Macusi, Matako, Ona, Taulipang, Tehuelche, Toba, Tupinamba, Wapisiana, Witoto, Yahgan

Eurasia (17 societies)

Ainu, Baiga, Chukchee, Gond, Kazak, Khasi, Kurd, Lepcha, Mongols, Osset, Rwala, Samoyed, Sema Naga, Toda, Vedda, Yakut, Yukaghir

Oceania (26 societies)

Alorese, Andamanese, Arunta, Balinese, Buka (Kurtatchi), Dieri, Dobuans, Dusun, Easter Islanders, Ifugao, Kamilaroi, Kiwai Papuans, Kwoma, Lesu, Mala, Maori, Marquesans, Miriam, Murngin, Orokaiva, Pukapukans, Tasmanians, Tikopia, Tongans, Trobrianders, Yungar

Subsequent to the selection of the sample, a listing was made of every type of sexual behavior considered deviant by any of the 110 societies. After miscellaneous minor tabus were eliminated from the list due to the paucity of data, the following behavior items remained.

1. Incest
2. Premarital relations
3. Illegitimate impregnation of an unmarried girl
4. Seduction of another man's fiancée
5. Sexual relations with own betrothed
6. Adultery
7. Seduction of prepubile girl
8. Homosexuality
9. Rape
10. Bestiality

11. Masturbation
12. Abduction of married woman
13. Sexual relations during menstruation
14. Sexual relations during pregnancy
15. Sexual relations during postpartum period
16. Sexual relations during lactation period
17. Sexual relations during mourning period
18. Sexual relations during war period
19. Sexual relations during periods devoted to specific food-getting activities

The data for each society were next checked to determine which of the above types of behavior were permitted, which were tabued, and whether differential punishments were accorded men and women, children and adults, single and married individuals.¹

The unit of this sample is the society, here defined simply as a group of individuals living together who recognize themselves as a separate group, and who have been so recognized by ethnologists. Historical anthropologists may challenge the value of predictions and generalizations derived from this analysis on the basis that the units are not independent because of the historical connections of some of the societies included. However, the present investigator assumes that selectivity enters into the process of cultural change, with the elements of any given culture tending to consistency. Once this functionalist viewpoint is adopted, cultural con-

¹ The tabus noted for exhibitionism, for violations of the levirate or sororate, for promiscuity, elopement, cross-class and cross-generation alliances were eliminated due to lack of data. Desertion was originally included in the list of tabued types of behavior, but was later removed because of the multiplicity of factors involved in determining the treatment of the deserting spouse. Frequently desertion was not considered an offense but merely the initial step in the breakup of a marriage. Many societies permitted desertion for stipulated reasons such as adultery or sterility, and others freely permitted desertion provided the brideprice was restored.

Notation was also made of instances of relaxation of the tabus. Sixteen societies of the sample reported instances of relaxation in the form of general ceremonial license, and three societies reported instances of highly immoral acts permitted under special circumstances to particular individuals. Thus, the Thonga or Lamba father may commit incest with his daughter before embarking on an elephant hunt, in order to achieve great courage. A study of folktales might better demonstrate the secret envy with which persons who break tabus are regarded by others of their societies.

tact can no longer be considered the decisive element in determining the absence or presence of traits, and individual societies may justifiably be treated as discrete units despite their historical contacts.

METHOD

Two measures were devised to determine the relative strengths of the tabus applied to the various sexual aberrations. The first was the percentage of societies which forbade a specific form of behavior. The second was designed to serve as a numerical index of the relative severity with which different infringements of the mores were punished. Since only rarely have ethnologists reported the manner in which members of particular cultural groups rate their punishments, a rating scale was devised in order that the severity of a number of punishments might be estimated by judges conversant with anthropological phenomena. A list was compiled of the actual punishments mentioned in the literature as customary for specific types of deviant sexual behavior. Seventeen judges then rated the itemized punishments as mild, moderate, severe or very severe. These ratings were given values of 1, 2, 3, and 4, respectively. The means of the values assigned by the judges to each of the punishments are presented in Table 1. These values were then used in order to estimate the severity of the punishments inflicted for each of the sexual deviations noted in the sample of societies. Thus it was possible to compare punishments for different deviations within a given society, and to compare punishments for the same deviation from society to society.

RESULTS

The results obtained from tabulating the percentages of societies punishing various types of sexual behavior are presented in Table 2. From an examination of these percentages it may be seen that incest, abduction and rape are the behavioral items most frequently tabued by the societies of the present sample. Conversely, premarital affairs and intercourse with one's own betrothed are the sexual acts least frequently forbidden. Adultery falls between these two groups of acts, being tabued far more fre-

quently than premarital indulgence, but less frequently than incest, abduction or rape.

TABLE 1. PUNISHMENTS RATED FOR SEVERITY ON A FOUR-POINT SCALE BY SEVENTEEN JUDGES, AND THE CORRESPONDING MEAN SEVERITY VALUES OBTAINED FROM THE RATINGS

Mean Severity Value Obtained	Punishments Rated for Severity
1.0	Small fine
1.2	Fistfight
1.4	Quarreling within family
1.5	Parental reproof
1.8	Beating by member of family
2.1	Duel
2.2	Public ridicule and disgrace
2.2	Enforced marriage
2.2	Illness
2.2	Bad luck
2.3	Danger to near kin
2.4	Ceremonial penance
2.4	Lowered brideprice
2.4	Knifing
2.5	Temporary exile
2.5	Humiliation at wedding
2.5	Heavy fine
2.5	Enslavement of relative
2.5	Divorce, and return of brideprice
2.5	Public flogging
2.6	Difficulty in acquiring a husband
2.6	Failure at hunting or fishing
2.6	Desertion of spouse
2.7	Puniness of offspring, injury to child
2.9	Divorce with disgrace, no re-marriage permitted
2.9	Facial mutilation
2.9	Multiple mutilation
2.9	Madness
3.0	Spearing of legs
3.1	Repudiation of bride by groom
3.1	Sorcery to injure or kill
3.3	Loss of virility
3.4	Public raping
3.4	Enslavement
3.4	Destruction of major property
3.5	Barrenness
3.6	Permanent exile
3.7	Life imprisonment
3.7	Torture, resulting possibly in death
3.7	Enforced suicide
3.9	Death

When the differences in percentages of societies punishing the following pairs of items were subjected to statistical test, they proved to be significant at approximately the 1 per cent level of confidence: (a) premarital indulgence and adultery; (b) intercourse with one's own betrothed and adultery; (c) adultery and rape; (d) adultery and abduction

TABLE 2. THE NUMBER OF SOCIETIES FOR WHICH DATA WERE AVAILABLE CONCERNING SPECIFIC TYPES OF SEXUAL BEHAVIOR, AND THE PERCENTAGES OF THESE SOCIETIES WHICH PUNISHED THESE SPECIFIC TYPES OF BEHAVIOR

No. of Societies*	Percentage Punishing	Type of Behavior and Person Punished
54	100	Incest**
82	100	Abduction of married woman
84	99	Rape of married woman
55	95	Rape of unmarried woman
43	95	Sexual relations during post-partum period
15	93	Bestiality by adult
73	92	Sexual relations during menstruation
88	89	Adultery (paramour punished)
93	87	Adultery (wife punished)
22	86	Sexual relations during lactation period
57	86	Infidelity of fiancée
52	85	Seduction of another man's fiancée
74	85	Illegitimate impregnation (woman punished)
62	84	Illegitimate impregnation (man punished)
30	77	Seduction of prepubescent girl (man punished)
44	68	Male homosexuality
49	67	Sexual relations during pregnancy
16	44	Masturbation
97	44	Premarital relations (woman punished)
93	41	Premarital relations (man punished)
12	33	Female homosexuality
67	10	Sexual relations with own betrothed

* The figures in this column represent the number of societies for which data were available concerning the permitting or forbidding of each specific type of sexual behavior. Thus, information concerning incest could be secured for 54 of the sample societies, information concerning abduction of a married woman could be secured for 82 of the societies, etc.

** Although ethnographers for only 54 of the societies of the sample stated specifically that incest was punished, it might be assumed that the entire 110 societies actually tabu incest. Some of these societies reported that incest was simply unknown, and therefore penalties could not be stated for non-existent crimes.

One difficulty in the way of determining the penalties for incest is the fact that anthropologists have only rarely defined the term "incest," using it to refer both to affairs within the nuclear family and to affairs within larger kin groups. Where information exists, parent-child incest and sibling incest are held in greater horror than is incest with

of a married woman; (e) adultery and incest.²

The positions on the scale of strength-of-tabu occupied by some of the remaining items are dubious, since differences in percentages of these items and adjacent items are not statistically reliable. Thus, on the basis of this measure, it cannot be concluded that punishment of a man is less frequent for the illegitimate impregnation of a single girl than for adultery, since the difference in percentages is not statistically significant. On the other hand, the finding that illegitimate impregnation of an unmarried girl is more frequently punished than a premarital affair not resulting in pregnancy proved to be highly significant ($CR=5.4$).

The above findings drawn from the data of Table 2 are further supported by the results obtained from the use of the scale of severity of punishment. Table 3 presents for each specified type of deviant behavior the mean scale value of the punishments inflicted by the societies of the sample. This mean value was determined for each type of behavior by applying the severity ratings of Table 1 to each punishment, and then averaging the obtained values. On the assumption that severity of punishment reflects the seriousness of an offense, it may be tentatively concluded from Table 3 that incest, abduction and rape are the most serious offenses. Adultery is less serious than these acts, but more serious than the illegitimate impregnation of an unmarried girl, and this in turn is a more serious offense than premarital indulgence. These conclusions are supported by statistical tests which yield highly significant differences between the mean scale values of the punishments for the following pairs of deviations: (a) abduction of a married woman and adultery by a man; (b) rape and adultery by a man; (c) adultery and premarital indulgence by a man;

classificatory relatives. It is logical to assume this is generally the case even when differential punishments are not mentioned. For this study, only data referring to incest within the nuclear family are utilized.

² The test of significance employed was the ratio of the difference between two percentages to the standard error of that difference. See Joy P. Guilford, *Psychometric Methods*, New York and London: McGraw-Hill Publications in Psychology, 1936, p. 60. The critical ratios found were all 2.5 and over.

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TABLE 3. THE NUMBER OF SOCIETIES FOR WHICH DATA WERE AVAILABLE CONCERNING SPECIFIC TYPES OF SEXUAL BEHAVIOR, AND THE AVERAGE SCALE VALUES OF PUNISHMENTS INFLICTED FOR THESE TYPES OF SEXUAL BEHAVIOR BY THE SOCIETIES OF THE SAMPLE

Number of Societies*	Average Scale Value of Punishments**	Type of Behavior and Person Punished
25	3.7	Abduction of married woman
50	3.3	Incest
32	3.3	Rape of married woman
8	3.0	Bestiality by adult
23	2.4	Rape of unmarried woman
89	2.3	Adultery (wife punished)
80	2.3	Adultery (paramour punished)
16	2.2	Sexual relations during lactation period
31	1.9	Sexual relations during menstruation
12	1.9	Sexual relations during postpartum period
16	1.9	Seduction of prepubile girl (man punished)
38	1.8	Illegitimate impregnation (man punished)
53	1.8	Illegitimate impregnation (woman punished)
18	1.7	Seduction of another man's fiancée
15	1.5	Infidelity of fiancée
29	1.3	Male homosexuality
28	1.2	Sexual relations during pregnancy
88	0.9	Premarital relations (woman punished)
11	0.8	Female homosexuality
86	0.8	Premarital relations (man punished)
16	0.7	Masturbation
66	0.1	Sexual relations with own betrothed

* The figures of this column do not coincide with those of the first column of Table 2, since anthropologists often report that an act is tabued, but fail to cite the customary penalties.

** In computing these averages, a punishment scale value of zero was entered for each society which permitted a specific type of behavior.

(d) adultery and premarital indulgence by a woman.³

³ The customary *t*-ratio was employed here to test the significance of the differences. This is the ratio of the difference of the means to the standard error of the difference of the means. See Allen L. Edwards, *Statistical Analysis for Students in Psychology and Education*, New York: Rinehart, 1946, pp. 182 ff. The *t*'s secured varied from 4.7 to 8.75, and were all significant at the 1 per cent level of confidence or better.

In order to determine the degree of correspondence between frequency and severity of punishment, a product-moment correlation coefficient was computed between the percentages of societies punishing the stipulated forms of sexual behavior and the average scale values of the punishments for those types of behavior.⁴ From the extremely high correlation obtained ($r=.87$, $df=20$), it may be concluded that the more frequently a given type of sexual behavior was tabued by the sample societies, the more severe the punishment, and vice versa. This high degree of correspondence between the positions of the behavior items on the scales constructed by the two measures of strength-of-tabu suggests that the relative positions of the items on the scale are reasonably stable.

Correlations were also computed between the punishments for various pairs of offenses, using the scale values of Table 1, to determine whether societies that punish one offense severely tend also to punish other offenses severely. High positive correlations were found between the punishments for the following pairs of deviations: (a) premarital indulgence by a man, and adultery with another man's wife; (b) premarital indulgence and adultery by a woman; (c) premarital indulgence by a man and rape of an unmarried girl; (d) premarital indulgence by a man and premarital indulgence by a woman; (e) adultery by a man and adultery by a woman; (f) adultery and rape by a man.⁵ The fact that these correlations exist is of interest since it tends to support the view that there may be generalized attitudes of permissiveness or punitiveness towards sexual activity. Murdock has recently expressed doubt that such generalized sexual tabus

⁴ See Edwards, *op. cit.*, p. 91, formula #23.

⁵ The *r*'s and degrees of freedom for each of the pairs were as follows:

Pair	<i>r</i>	<i>df</i>
(a)	.36	62
(b)	.21	70
(c)	.59	19
(d)	.66	77
(e)	.83	66
(f)	.77	26

All these coefficients with the exception of that for Pair (b) were significant beyond the 1 per cent level of confidence. The *r* for Pair (b) was significant between the 5 and 10 per cent levels only.

exist save for a very few individual societies.⁶ However, these correlations seem to indicate a tendency on the part of societies to be generally lenient or severe despite the fact of great variability within any given society. Such a conclusion is in agreement with the hypothesis that there is a strain towards consistency within the mores.

The above data have demonstrated a gradation in the strength of various sexual tabus. It may now be asked why incest and abduction are tabued more strongly than is adultery, and why the tabus on adultery are generally more stringent than those on premarital indulgence.

One possible explanation for the variability in the strength of the tabus is the presence or absence of the element of aggression or assault. This is supported by data from the present study since acts which imply aggression are punished both more frequently and severely than are similar acts without obvious aggressive content. Thus a man is usually punished more severely for raping an unmarried girl than for seducing her. (The difference in punishments is highly significant: $t=4.3$, $df=20$). Likewise a man is punished more severely for raping or abducting a married woman than for having an illicit affair with her. However, aggression is insufficient of itself to explain why the punishment for raping a married woman is greater than the punishment for raping an unmarried girl.

A second factor that may aid in accounting for the gradation in strength of tabus is the marriage status of the person or persons involved. Thus, sexual acts by or with married individuals are generally more seriously regarded than are similar acts by unmarried individuals. Adultery is punished more than premarital indulgence, both for men and for women, and the rape of a married woman is more severely tabued than the rape of an unmarried girl. Likewise, affairs involving betrothed individuals are more serious for most of the societies than are affairs involving individuals not promised in marriage.

Still a third variable is the sex of the individual concerned. This factor, however, did not appear to be especially important.

There seems little difference in the extent to which men and women are punished for premarital indulgence or for adultery. Thus, punishments of an unfaithful fiancée and of her extra-betrothal partner are nearly identical (see Table 3). Nonetheless, it should be mentioned that the persons who punish a man for a given act usually stand in a different relationship to him than do the persons who customarily punish a woman for a similar transgression. A man is punished not so much by his own family or mate as by the family of the woman partner to his act, since it is the woman's relatives who suffer through injury to the woman's potential or actual marital status. The woman's marital status, not the man's, appears to be the prime consideration.

A fourth factor determining strength of tabus, which may be even more significant than the others, might be labelled the factor of social involvement. Other things equal, it appears that societies punish more frequently and severely those acts which injure larger numbers of individuals. Conversely, the fewer the individuals adversely affected, the less strong the tabu.

Table 4 represents an attempt to determine the influence of this factor of social involvement. Here sexual acts have been grouped into three categories. Category 1 includes those acts which appear from the documented data to be interpreted by the various societies as concerning only the individuals performing the act, or members of their immediate families. Thus, violating pregnancy or lactation tabus is considered by most societies as injurious only to the parents or the child, or to both. Most societies conceive the breaking of tabus against premarital intercourse as injuring only the boy, the girl, and their families. The girl's family may be deprived of a maximum bride-price for the girl, and the boy's family suffers demands for retribution made by the girl's family. Similarly it may be argued for the other items in this category that only members of the immediate families of the offenders are affected by the acts.

Category 2 includes types of behavior believed by the societies studied to injure individuals other than the deviators or their blood kin. Thus, in adultery, not only are the wife and her family involved, but also the paramour and his family, and the hus-

⁶ George P. Murdock, *Social Structure*, New York: The Macmillan Company, 1949, pp. 263-4.

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TABLE 4. SEVERITY OF PUNISHMENT FOR SPECIFIC TYPES OF SEXUAL BEHAVIOR AS A FUNCTION OF THE FACTOR OF SOCIAL INVOLVEMENT

Type of Behavior and Person Punished	Number of Societies	Average Scale Value of Punishment
<i>Category 1: Acts interpreted by the sample societies as affecting only the participants or members of their immediate families.</i>		
Incest	35	3.2
Bestiality by adult.....	5	2.4
Rape of unmarried woman.....	23	2.4
Sexual relations during lactation period.....	16	2.2
Sexual relations during menstruation.....	30	1.9
Sexual relations during postpartum period.....	12	1.9
Seduction of prepubile girl (man punished).....	14	1.6
Illegitimate impregnation ((man punished).....	34	1.7
Illegitimate impregnation (woman punished).....	49	1.7
Male homosexuality	27	1.2
Sexual relations during pregnancy.....	28	1.2
Premarital relations (woman punished).....	86	0.9
Female homosexuality	10	0.6
Premarital relations (man punished).....	86	0.8
Masturbation	16	0.7
Sexual relation with own betrothed.....	66	0.1
Total	537	Ave. 1.2
<i>Category 2: Acts interpreted by the sample societies as affecting members of families other than the immediate families of the participants.</i>		
Abduction of married woman.....	24	3.7
Rape of married woman.....	30	3.2
Adultery (wife punished).....	88	2.3
Adultery (paramour punished).....	78	2.3
Seduction of another man's fiancée.....	18	1.7
Infidelity of fiancée.....	15	1.5
Sexual relations during mourning period.....	10	2.6
Total	263	Ave. 2.5
<i>Category 3: Acts interpreted by the sample societies as affecting the whole clan, tribe, community.</i>		
Abduction of married woman.....	1	3.9
Incest	15	3.6
Rape of married woman.....	2	3.9
Bestiality by adult.....	3	3.9
Adultery (wife punished).....	1	2.5
Adultery (paramour punished).....	2	3.2
Sexual relations during menstruation.....	1	2.2
Seduction of prepubile girl.....	2	3.9
Illegitimate impregnation (man punished).....	4	2.7
Illegitimate impregnation (woman punished).....	4	2.4
Male homosexuality	2	3.1
Premarital relations (woman punished).....	2	1.8
Female homosexuality	1	2.5
Sexual relations during war period.....	16	3.9
Total	56	Ave. 3.4

band and his family. Violations of mourning tabus affect members of the dead husband's family as well as the widow and lover. Likewise, the other types of behavior in the second category affect families besides those of the offenders.

Category 3 includes acts interpreted by the societies concerned as bringing injury to the whole group, such as a clan, tribe or village, through crop failures, divine displeasure, plagues and disasters. Thus, 15 societies reported that incest harmed the

society as a whole, two societies claimed male homosexuality affected the entire community, and three societies believed bestiality did likewise.

Three conclusions may be drawn from Table 4. First, it seems relatively uncommon for sexual acts to be interpreted as harming the whole society, since the total number of cases in Category 3 is small when compared to the totals in the other two categories. Second, it appears that punishment becomes more severe as more individuals are affected, since the average punishment for all acts in Category 3 (3.4) exceeds the average for acts in Category 2 (2.5), which in turn exceeds the average for acts in Category 1 (1.2). Third, it may be noted that identical acts are punished more severely by societies which interpret them as injurious to the whole community than by societies which do not so interpret them. Thus, those societies which express the belief that incest hurts the whole society average a more severe punishment for that deviation (scale value=3.6) than do societies which do not specify such a belief (scale value=3.2). The average punishment of men for homosexuality in societies conceiving the act as harming the community is 3.1 in contrast to an average of 1.2 for societies not believing this to be true. The comparison may be continued for other items.

Certain comments need be made concerning Table 4. Within Category 1, the values for incest, bestiality and rape are the ones most at variance with the values of the other items in the group. Although only 15 of the 50 societies for which information on incest was available reported specifically that incest was an offense against the community, fuller information might evince the fact that others of these 50 societies held to a similar belief. Those incest cases would then be shifted to Category 3, and the homogeneity of Category 1 would be increased. In like manner, with better information it might be found that many cases of bestiality classified in Category 1 properly belong in Category 3. Supporting this possibility is the evidence that members of certain societies occasionally interfere and punish those guilty of incest or bestiality, if the families of the offenders fail to exact the customary penalties. This fact implies that these non-relatives consider themselves affected by the offenses.

Finally, the punishment for rape is exceptionally high for items in Category 1 for two reasons. First, as mentioned earlier, the punishment for rape must compound the punishments for assault and for a sexual deviation. Second, in the case of rape, although members of two families (the man's and the woman's) are involved, the act still involves an innocent party. Possibly, on the basis of such reasoning, the act should be classed in Category 2. If these changes were instituted, the extreme cases would be shifted, the variability within categories cut down, and the differences between the averages of the categories would be increased.

Despite the variability within categories, the differences in average punishments for the three categories tend to justify the view that social involvement is one of the several factors to be considered in explaining the graduated penalties accorded by the sample societies to various forms of sexual behavior. Moreover, the gradation of punishment on the basis of social involvement is reasonable when one remembers that many primitive societies possess no institutions to judge or to punish. In such societies, individuals and their kin protect their rights and avenge their injuries, while persons not directly harmed refrain from interference. Affairs in which members of a family injure other members of the same family will tend to be adjusted within the family structure. In such cases, punishment of the guilty is tempered by considerations of sentiment, of the value of the offender to the family group, and by the need for ingroup self-preservation. Such considerations do not operate to the same extent outside the immediate family group, and punishment will therefore be greater where members of other family groups perform the injury. Nevertheless, it appears that a family will not exact as extreme a penalty from these outsiders if its own members were also at fault. Thus, a father will not tend to punish a man more severely for having an affair with his daughter, than he will punish his daughter, if she were equally responsible for the transgression.

A final problem for consideration is the nature of the sanctions supporting the tabus. Where specific behavior is proscribed, the tabus may be sustained (a) by human agents; (b) by natural or supernatural sanc-

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tions; or (c) by both human agents and supernatural sanctions conjointly. Table 5 presents data concerning the punitive agents for specific types of sexual behavior in the sample societies. It may be seen from this table that the role assigned to supernatural agents is of unequal importance for different types of behavior and on occasion it appears

reacts to a problem in a random fashion. As the individual hits on a bit of adjustive behavior, it is incorporated into a habit system. Other individuals may imitate his behavior, or may independently chance upon the same behavior, until gradually more and more individuals are responding consistently in a similar fashion. In this way folkways

TABLE 5. AGENTS OF PUNISHMENT FOR SEXUAL DEVIATIONS

Number of societies punishing specified act *	Type of behavior and person punished	Punitive Agents		
		Human only	Super-natural only **	Both human and super-natural
25	Abduction of married woman.....	23	0	2
50	Incest	23	6	21
31	Rape of unmarried woman.....	27	0	4
7	Bestiality by adult.....	4	0	3
20	Rape of unmarried woman.....	18	0	2
77	Adultery (wife punished).....	70	0	7
70	Adultery (paramour punished).....	60	1	9
13	Sexual relations during lactation period.....	0	13	0
25	Sexual relations during menstruation.....	3	20	2
10	Sexual relations during postpartum period.....	0	10	0
9	Seduction of prenubile girl (man punished).....	5	1	3
28	Illegitimate impregnation (man punished).....	23	0	5
41	Illegitimate impregnation (woman punished).....	37	0	4
10	Seduction of another man's fiancée.....	9	1	0
7	Infidelity of fiancée.....	6	1	0
15	Male homosexuality	12	1	2
12	Sexual relations during pregnancy.....	0	11	1
34	Premarital relations (woman punished).....	31	1	2
3	Female homosexuality	2	0	1
31	Premarital relations (man punished).....	26	0	5
7	Masturbation	6	1	0
6	Sexual relations with own betrothed.....	6	0	0
531	Cases of tabued behavior..... Totals	391	67	73

* The figures in this column represent the number of societies of the sample which tabued a specific act and which also cited the punitive agents. These figures, therefore, do not necessarily coincide with those of the first column of Table 3 since the latter included some societies which permitted the type of behavior, or which failed to cite the punitive agents.

** The writer originally intended to distinguish between natural punishments and those deriving from supernatural or supersocial agents. It was quickly found that either primitive peoples do not distinguish clearly between such categories, or that anthropologists have failed to report their distinctions.

negligible. Some sociologists might hold that the types of behavior not sustained by supernatural sanctions should not be termed mores, since they define mores as religiously sanctioned patterns of behavior and tabus as religiously prohibited patterns of behavior. This viewpoint, though justifiable, appears not to be fruitful. Sumner has pointed out that the mores are mass phenomena which have evolved gradually.⁷ First, the individual

are created. As they become settled and carry the conviction of rightness, they evolve into mores, which are eventually reinforced by the sanction of ghost-fear. Here finally are the fully formed mores. However, when one observes cultural phenomena, it is almost impossible to indicate the precise points on the continuum of behavior at which random acts become habits, at which similar individual acts become collectively folkways, and at which the folkways are transformed into mores. It is obvious that patterns which might be considered mores are not all equally

⁷ William G. Sumner and Albert G. Keller, *The Science of Society*, New Haven: Yale University Press, 1927, Vol. 1, pp. 32-4.

well crystallized, and that not all are equally backed by religion. This inequality in the degree of religious sanctioning is shown by Table 5.

Not only are supernatural sanctions of varying importance for different mores, but they are less important than are social sanctions. Thus, from Table 5 it appears that in 73.6 per cent of the cases the punitive agents are human alone; in 12.6 per cent of the cases punishment is relegated to supernatural agents alone; and in another 13.8 per cent both human and supernatural sanctions are combined. Supernatural sanctions are present, then, in only 26 per cent of the cases as against the 87 per cent in which social sanctions operate.⁸

A third conclusion to be derived from the table is that some deviations occur without retribution by human agents, save for the general tone of public opinion. Punishment is left almost entirely to supernatural agents for violations of such tabus as those built about the reproductive functions—the lactation tabus, the post-partum tabus, tabus operating during pregnancy, and, to a lesser degree, tabus during the menstrual period.

Another possible conclusion, though this is not clearcut, is that supernatural tabus usually reinforce social tabus for those offenses considered to be serious. Where the two types of sanction are employed, the punishments are likely to be very severe. For instance, incest and adultery are the most frequently doubly sanctioned types of deviations, and they are both heavily punished. On the other hand, it must be admitted that for the 25 societies for which the punishment for abduction has been documented, there are only two instances of a dual punishment.

⁸ It might be mentioned that the individuals who ordinarily administer the punishments are those persons most directly injured by the deviation. A woman's family punishes her for premarital lapses, and a husband punishes his wife for infidelity. The girl's family punishes the man responsible for seducing her if such seductions are disapproved, and the outraged spouse punishes his wife's paramour. The dead man's relatives punish his widow for infringements of the mourning tabus, and a fiancée or the fiancée's family punish the unfaithful fiancée and her seducer. Occasionally, members of the community outside the immediate families will punish incest and bestiality cases, especially if the family of the offender(s) fail to carry out the customary penalties.

Table 6 demonstrates in more detail the role of supernatural (or natural) agents. In Group A are listed those tabus whose violation is seldom punished by other members of the societies. Fear of the inevitably unpleasant consequences imposed by nature or by supernatural agents serves as a deterrent to would-be offenders. These tabus seek mainly to restrict marital relations. It may be that the punishment for their infringement is left to supernatural agents for the simple reason that violations are difficult to detect. A second reason for the absence of social sanctions may be that the injured and the injurer belong to the same family group, and members of the larger society for that reason lack interest in exacting penalties. Unrelated individuals may consider it unfortunate that the deviators are injuring themselves and their kin, but refuse to stop or punish the acts. A third possible reason for the predominance of supernatural sanctions is that unborn or infant children are frequently the ones thought to be hurt by the offenses. Since such youngsters lack human protectors other than the very parents who are injuring them, society nominates supernatural agents to serve as surrogate parents and additional protectors.

For the tabus in Group B, supernatural sanctions are important, but social sanctions also operate in almost every instance. Society concerns itself with preventing the violation of these tabus since members of *more than one family group* are affected (as in cases of infringements of mourning tabus, tabus on female homosexuality, and tabus on the seduction of a prenubile girl), or since, as in cases of incest and bestiality, the whole society is believed to be hurt by the acts.

In tabu Groups C and D, where supernatural sanctions are secondary, injury is frequently done to other individuals by the offender(s). Often a third and innocent party is affected. Supernatural sanctions seem insufficient here, and human agents become of prime importance in penalizing the culprits. Both where the injury is flagrant and where the act is considered trivial, there apparently is no need for recourse to supernatural sanctions.

SUMMARY AND CONCLUSIONS

The purpose of the present study has been to discover if and why specific types of

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TABLE 6. THE ROLE OF SUPERNATURAL AGENTS IN PUNISHING SPECIFIC TYPES OF SEXUAL BEHAVIOR

Type of behavior and person punished	Number of societies citing punishment	Per cent of societies citing supernatural agents
<i>Group A: Types of tabued behavior for which supernatural sanctions are predominant.*</i>		
Sexual relations during war period	16	100%
Sexual relations during crises	8	100
Sexual relations when engaged in certain occupations.....	11	100
Sexual relations when engaged in food-getting activities.....	23	100
Sexual relations during lactation period	13	100
Sexual relations during postpartum period	10	100
Sexual relations during pregnancy	12	100
Sexual relations during menstruation	25	92
<i>Group B: Types of tabued behavior for which supernatural sanctions are moderately important.**</i>		
Incest	50	54
Sexual relations during mourning period.....	10	50
Seduction of prepubile girl.....	9	44
Bestiality	7	43
Female homosexuality	3	33
<i>Group C: Types of tabued behavior for which supernatural sanctions are relatively unimportant.***</i>		
Male homosexuality	15	20
Illegitimate impregnation (man punished).....	28	18
Premarital relations (man punished).....	31	16
Adultery (paramour punished).....	70	14
Infidelity of fiancée.....	7	14
Masturbation	7	14
Rape of married woman.....	31	13
<i>Group D: Types of tabued behavior for which supernatural sanctions are least important.</i>		
Rape of unmarried woman.....	20	10
Seduction of another man's fiancée.....	10	10
Illegitimate impregnation (woman punished).....	41	10
Adultery (wife punished).....	77	9
Premarital relations (woman punished).....	34	9
Abduction of married woman.....	25	8
Sexual relations with own betrothed.....	6	0

* Only rarely did members of the societies actively punish violators of the tabus in Group A. The Lamba exiled a woman who had intercourse during menstruation. The Kamilaroi and Ashanti killed both parties to intercourse during menstruation, but the source material did not specifically state supernatural agents to be involved in any way. The Masai flogged a man and killed his cattle if his child was stillborn, for this was presumed to be the result of intercourse during pregnancy.

** In almost every instance in Group B, supernatural sanctions are reinforced by active punishments by other members of the society.

*** All violations in Groups C and D are punished by human agents. The supernatural punishments which exist appear to be relatively unimportant.

sexual behavior are tabued more strongly than others. Following a compilation of a list of types of sexual behavior considered to be deviant by some or all of the 110 primitive societies comprising the present sample, the relative strengths of the tabus applied to the deviant types of behavior were measured in two ways. First, the percentages of the total societies which punished each

specific type of behavior were tabulated. Second, the degree of the severity of the punishment for each type of behavior was estimated through the application of ratings of punishment-severity made by seventeen judges. When statistical tests were applied to the data, the following conclusions appeared to be justified.

1. A high positive correlation exists between

the frequency with which a given type of behavior is tabued and the severity of the punishment.

2. Incest, abduction and rape are the forms of behavior most frequently tabued and most severely punished. Adultery is punished less frequently, and premarital indulgence, particularly if with a betrothed partner, is the least frequently and most lightly punished. These general tendencies to punish certain forms of sexual behavior more severely than other forms persist despite differences in culture of individual societies and presumably derive from sociological factors common to human groups in general.

3. There appears to be a tendency for individual societies to be generally lax, moderate,

or severe in their attitudes toward sexual activity. Significant positive correlations between the values of punishments accorded pairs of offenses within the same societies lend support to the view that the sexual mores of any given society tend to integrate.

4. Punishments tend to be more severe for those sexual deviations which involve greater numbers of individuals, transgress marital bonds, and contain elements of aggression, than for deviations which involve fewer individuals, concern single persons, and lack aggressive content.

5. In the great majority of cases the mores are actively upheld by human agents. Supernatural sanctions ordinarily supplement, rather than supplant, social sanctions.

CONFLICT OF ATTITUDES TOWARD THE ROLES OF THE HUSBAND AND WIFE IN MARRIAGE

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FAMILY disorganization has been, and is, the subject of considerable attention in both popular and scientific literature. Attitudes of, and attitude differences between, married and divorced persons toward their respective spouses' marital roles may be significantly related to marital rifts.¹ Because divorce rates are high, and because little or no empirical analysis has been done in the field of differences in attitudes toward marital roles between spouses,² this study

was undertaken with the assumption that additional insight into the total problem of family disorganization might be obtained or suggested. The hypothesis to be tested is: *Divorced couples exhibit a greater disparity in their attitudes toward the roles of the husband and wife in marriage than do married couples.*

CONSTRUCTION OF THE ATTITUDE SCALE

Since this study is concerned with *attitude* toward *role* of spouses in marriage, these two terms were defined. A review of the literature indicates that these terms are employed variously, depending upon the problem at hand.³ However, for purposes of this study, *attitude* refers to the response consistencies of the respondents toward the role of spouses in marriage as revealed in the totality of their responses to items employed as a scale. *Role* refers to a culturally ascribed pattern of behavior, including duties, expected or required of persons behaving in specific social situations; i.e., the behavior expected of husband and wife in marriage situations.

¹ "Each young man who marries brings with him, both consciously and unconsciously, his idea of the part to be played by himself as husband and the part to be played by his wife as his wife. Similarly, the young woman enters marriage with a preconceived notion of the roles of wife and husband. . . . If the conceptions of both are reasonably fulfilled, we can expect a satisfactory adjustment. . . . We should remember, however, that we enter marriage with definite expectations, and if reality falls short of them, dissatisfaction follows . . ." c.f. Hill, R. and Becker, H. (Editors), *Marriage and the Family*, Boston: Heath, 1942, pp. 316-317.

² Ingersoll, H. L. "Transmission of Authority Patterns in the Family," *Marriage and Family Living*, 10, 1948, p. 36. This was the only article relating specifically to role in marriage which the writer could find, although other studies such as the Burgess and Cottrell work incidentally treated this problem. See: Burgess, E. W. and Cottrell, L. S. Jr., *Predicting Success or Failure in Marriage*, New York: Prentice-Hall, 1939, p. 345.

³ See any standard text in psychology, social psychology, or sociology; or consult articles by L. L. Thurstone, Read Bain, D. T. Campbell, P. M. Symonds and others.

Commencing in 1941 and extending through 1947, exclusive of the war years, 62 case histories of married and divorced persons were collected from which common attitudes toward marriage roles were selected to provide bases for items to be included in a scale designed to measure attitudes toward the roles of the husband and the wife in marriage.⁴ A preliminary scale of 60 items was constructed from this information. This scale was revised and reduced to fifty items by consultation with three 'experts'—two sociologists and one psychologist—who were requested to judge each item on the basis of: the quality of expressing an attitude, relevance to the role of spouses in marriage, clarity, and, as nearly as possible, expression in the vernacular. This 50-item scale was then given to 30 divorced and 30 married couples whose responses were subjected to a method of measuring internal consistency whereby the scale was reduced to 28 items—retained because of their comparatively high critical ratios.⁵ Relative reliability of the 28-item scale is indicated by the fact that a test-retest comparison produced a coefficient of correlation of .79; and the split-half method employing the Kuder-Richardson formula produced an uncorrected coefficient of correlation of .90. These two coefficients of correlation were computed from the responses of 80 persons equally divided by sex and marital status. The test-retest interval was twenty days.

In order to express "the quantity of a quality" an arbitrary system of weights ranging from one to five was assigned to the verbal response positions ranging from Strongly Agree to Strongly Disagree. A low score indicates the traditional male-dominant or conservative attitude and a high score indicates the emergent feminine-equalitarian or liberal attitude. The lowest possible score on the 28-item scale is 28, or a completely male-dominant attitude, compared to the

highest possible score of 140, indicating the opposite extreme. The complete schedule of 28 attitude statements⁶ includes ten personal data items used for description of the respondents and for analyses of possible relationships between attitude configurations thus measured and the items such as marital status, sex, age, occupation, education and the like.

THE SAMPLE

The sample was obtained by interviews with 400 persons, 100 divorced and 100 married couples, living in or around Chillicothe, Ohio during the duration of this study. The sample of 100 divorced couples was obtained from the total of 393 divorces recorded in Chillicothe (Ross County seat) from January 1, 1947 to July 1, 1949. Use of the City Directory, local personnel rosters, acquaintance with local leaders and the like produced the names of 312 divorced men assumed to be residing in the area and available for interview; from which 130 were selected for interview by use of Tippet's random sampling numbers.⁷ A total of 117 numbers was used to obtain 200 complete cases, i.e., complete schedule responses from 100 divorced men and their respective former wives. The sample of 100 married couples was obtained in the same manner, with this important difference: the married couples selected for random numbering were chosen from the marriage records; a minimum of two couples being selected for each divorced couple, selected on approximately the same date that the respective divorced couples had been married. Thus, the control was based on the respective married and divorced couples having married on approximately the same date. A total of 118 numbers was used before 200 complete married cases were obtained. The data presented here were obtained by personal interview with each of the 400 persons in on-the-job and at-home situations from July 1, 1949 through April

⁴ Additional details concerning methodology and analysis are presented in the writer's doctoral dissertation, *A Study of Conflict in Attitudes Toward the Roles of the Husband and Wife in Marriage*, Ohio State University, Columbus, 1950, in which Appendix A includes a summary of the case history data, plus sample reasons given for getting married or divorced.

⁵ Sletto, R. F. *Construction of Personality Scales by the Method of Internal Consistency*, Hanover, Sociological Press, 1937.

⁶ Some sample statements: The husband should help with the housework. If the husband insists, the wife should quit a needed job. If a husband runs around, so can his wife. The husband should wear the pants. It's okay for the wife to earn as much as her husband.

⁷ Pearson, K. (Ed.) *Tracts for Computers*, London: Cambridge University Press, 1927, No. 15, (Arranged by Tippet, L. H. C.)

TABLE 1. CHARACTERISTICS OF THE SAMPLE BY MARITAL STATUS AND SEX

Characteristics	Divorced		Married		Total		TOTAL
	Male n-100	Female n-100	Male n-100	Female n-100	Male n-100	Female n-100	
Median Age	27.7	23.7	26.8	22.8	27.2	23.2	25.2
Median Education	9.1	9.6	9.2	9.8	9.1	9.7	9.4
Per Cent Employed	100	85	100	38	100	61.5	80.7
Occupations (per cent) of males							
Common Labor	38		35		36.5		
Farm Labor	11		16		13.5		
Semi-Skilled	21		22		21.5		
Skilled	16		15		15.5		
Professional, Semi-Professional and Business Admin.	7		6		6.5		

30, 1950. Each person was interviewed in the absence of spouse or former spouse.

Characteristics of the 400-person sample, other than sex and marital status, were: median age, 25.2; median education, 9.4; median years since marriage, 3.5; 100 per cent native white; 14 per cent rural residence; six per cent Catholic; of the males, 37 per cent were common laborers, 13 per cent farm laborers, 22 per cent semi-skilled, 16 per cent skilled, and 6.5 per cent were engaged in professional, semi-professional or business administrative occupations. Table 1 presents the characteristics of the 400-person sample and it is evident that this is a more representative group than either the Burgess-Cottrell⁸ or Terman⁹ samples.

FINDINGS AND ANALYSES

By use of the product moment method of linear correlation of ungrouped data, the

⁸ Burgess, E. W. and Cottrell, L. S. Jr., *Predicting Success or Failure in Marriage*, New York: Prentice-Hall, 1939.

⁹ Terman, L. et al., *Psychological Factors in Marital Happiness*, New York: Prentice-Hall, 1939.

responses of the 400 persons yielded the following general results: 1. No statistically significant coefficients of correlation were found to exist between attitude scores of the various sex and marital status categories and such attributes as age, education and occupation, which would indicate possible sample error; 2. A high positive coefficient of correlation was found between married couples' attitude scores and, also between divorced couples' attitude scores—suggesting that persons holding similar attitude levels tend to marry or that these attitudes converge after marriage. A summary of the various coefficients of correlation between attitudes and variables is presented in Table 2.

By use of analysis of the significance of the difference between mean scores of the various sex and marital status groups, some statistically significant results were found which inspection of the ranges and mean scores had suggested (see Table 3).

Two facts stand out in this particular analysis: 1. The divorced males had the

TABLE 2. SUMMARY OF COEFFICIENTS OF CORRELATION BETWEEN ATTITUDES OF VARIOUS GROUPS AND OTHER VARIABLES

Variables	Sex and Marital Status Categories					
	Divorced		Married		Couples	
Correlation Between	Male	Female	Male	Female	Divorced	Married
Score and Age	+.10	+.19	-.01	-.08	.....	.....
Score and Education	+.09	+.03	-.15	-.10	.....	.....
Score and Occupation	-.10	.....	+.01	.....	.....	.....
Differences in Score and Differences in Age					-.06	+.09
Differences in Score and Years Married					+.04	-.11
Male Score and Female Score					+.86	+.80

CONFLICT OF ATTITUDES IN MARRIAGE

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TABLE 3. RANGE OF SCORES, MEAN SCORES AND DIFFERENCES BETWEEN MEAN SCORES BY SEX AND MARITAL STATUS

Group	Range	Mean Scores	Differences Between Means
Divorced Males	34-118	66.16	.....
Divorced Females	52-129	93.86	27.70
Married Males	41-120	75.18	.....
Married Females	39-126	81.82	6.64

lowest scores which then rose among the married males, married females, to the divorced females; 2. The difference between mean scores for the divorced couples was approximately four times as great as that for the married couples.

It is evident that a large difference in mean scores exists between divorced husbands and their former wives, and a somewhat smaller difference exists between the married couples. A measure of the significance of the difference between these means was obtained by using a standard formula.¹⁰

By applying this formula to the attitude scores of the various sex and marital status categories we find differences that are statistically significant, by virtue of large critical ratios, between the following groups: mean scores of the married men and their wives; mean scores of the divorced men and their former wives; mean scores of the divorced

and married men; mean scores of the divorced and married women; and, finally, the combined mean score of the men compared with the combined mean score of the women. Table 4 contains this information in detail.

Thus far there appear to be significant differences between attitudes of men and women toward the roles of spouses in marriage. These differences, however, cannot be considered as sex differences alone, because equally significant differences were found between married and divorced males and between married and divorced females, suggesting that marital status is an important factor. The nature of the scale is such as to measure sex differences in attitudes toward their respective roles in marriage. The division of labor by sex in our culture and a general tendency for each sex to learn different role attitudes may account for much of the difference.

Additional evidence of the significance of differences is revealed in Table 5. Every divorced female had a higher, or more equali-

$$^{10} \sigma d = \sqrt{\frac{\sigma^2_1}{N_1} - \frac{\sigma^2_2}{N_2}}$$

TABLE 4. SIGNIFICANCE OF THE DIFFERENCES BETWEEN MEAN ATTITUDE SCORES OF THE VARIOUS SEX AND MARITAL STATUS CATEGORIES

Paired Groups	Mean Scores	Difference	Standard Error of Difference	Critical Ratio
Divorced Female	93.86	.....	.....
Married Female	81.82	12.04	2.40	5.01
Married Male	75.18	.....	.....
Divorced Male	66.16	9.02	1.80	5.01
Divorced Female	93.86	.....	.....
Divorced Male	66.16	27.70	2.27	12.20
Married Female	81.82	.....	.....
Married Male	75.18	6.64	1.97	3.37
Total Female	87.84	.....	.....
Total Male	70.67	17.17	1.70	10.10
Div. Cples Mn. Dif.	27.70	.....	.....
Mrd. Cples Mn. Dif.	6.64	21.06	2.32	11.01

TABLE 5. DISTRIBUTION OF DIFFERENCES IN ATTITUDE SCORES BETWEEN COUPLES

Difference in Score	Married Couples	Divorced Couples	All Couples
-39 to -20	2	0	2
-19 to -10	5	0	5
- 9 to 0	18	0	18
0 to 9	30	1	31
10 to 19	36	16	52
20 to 29	5	48	53
30 to 39	4	23	27
40 to 49	0	9	9
50 to 60	0	3	3
Total	100	100	200
Range of Difference	-30 to +35	+4 to +60	-30 to +60

tarian, attitude score than her respective former husband, and the actual differences ranged to 60 points higher on the scale. In contrast, 25 of the married females had lower, or more conservative, attitude scores than their respective husbands and the actual differences ranged from minus 39 to plus 25 points on the scale. The sign of the difference is plus when the wife's score is higher, since the difference as calculated is the wife's score minus that of her husband.

These outstanding differences were probably affected by various factors involved in this study, such as the interview method. Divorced persons may have overstated their attitudes as a result of playing the role of divorcée in the presence of the interviewer. Similarly, it is possible that some married persons may have overstated their attitudes; the net result being a larger difference than

might have developed by use of a questionnaire method. In spite of this possible bias, it would appear that differences, although smaller, would still be found.

SUMMARY AND CONCLUSIONS

Statistically significant attitude differences toward the marital roles of husband and wife were found to be related to sex (the males were more conservative) and to marital status (differences in attitudes between divorced couples were on the average four times as great as those between married couples). No significant relationships were found to exist between attitudes of the various sex and marital status groups and variables such as age, education and occupation. Thus, within the limits of this study the hypothesis: "*Divorced couples exhibit a greater disparity in their attitudes toward the roles of the husband and wife in marriage than do married couples,*" was found to be true.

As usual, research tends to create more problems than are solved, and this study is no exception. The relationships found here may be greatly influenced by many factors, including poor sampling and faulty analysis. In any event, replication might serve to verify the results found here. Meanwhile, it is suggested that this or similar attitude scales might be useful in counseling situations, especially if used in conjunction with other instruments measuring such factors as personality deviation which, in itself, may be the most fruitful area of inquiry with relation to the nature of marital discord.

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THE MOTIVATIONAL STRUCTURE OF POLITICAL PARTICIPATION *

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IN *The People's Choice*,¹ Lazarsfeld, Berelson, and Gaudet found that the psychological involvement of the individual in a political campaign had important effects upon his behavior. They termed this psychological involvement *interest in the election*, in the sense of having one's interests involved, and they found that interest was one of the primary factors influencing political behavior. They found, for example, that interest influenced the time of final vote decision, that it differentiated constants (people who made up their minds and kept them made up) from one-party changers and one-party changers from two-party changers, that it influenced degree of exposure to political propaganda, and that it determined who would vote and who would not. In fact, interest functioned in so many ways that it had constantly to be taken into account throughout the Erie County study.

This paper continues the study of political involvement reported in *The People's Choice*. It shows that interest is not a uni-dimensional characteristic of individuals, but rather a three-dimensional one; there is not one interest-in-the-election, but rather three interrelated ones. It provides a verified hypothesis as to the motivational nature of the three dimensions of political involvement, and relates these motivations to some of the findings of *The People's Choice*. Finally, it illustrates a novel application of traditional factorial techniques, *viz.*, the use of factor analysis in testing a previously stated hypothesis as to the factorial composition of a correlation matrix.

* I am grateful to Professor Paul F. Lazarsfeld of Columbia University for furnishing the data analyzed in this paper. This is the first half of a two-part factorial study of political behavior. In the second part, not yet completed, Professor Lazarsfeld will compare the results of the present analysis, which uses traditional factorial techniques, with the results of applying latent structure analysis to the same data.

¹ Columbia University Press, New York, 1948.

As election day approaches, people engage in many activities which denote psychological involvement in the campaign. They listen to radio accounts of the conventions, or read about the conventions in the newspaper. They recognize the names of political candidates, and they acquire some knowledge about the candidates. They listen to political speeches on the radio. They express opinions on issues involved in the campaign. They try to convince others of the correctness of their own views, or they do active political work in behalf of a candidate or party. Likewise, they vote; and if they are asked if they are interested in the election they say that they are.

This is the kind of observational material by which one can determine whether or not a person is psychologically involved in a political campaign. These are examples of interest functioning. This is the kind of material which can tell us what the nature of interest is, and against which any theory as to the motivational structure of interest must be tested. Records of the participation of individuals in activities such as these are thus the raw material with which this analysis begins.

Table 1 is a correlation matrix showing for a sample of 600 persons the correlations between participating in a number of activities of the kind described. The correlations are Pearsonian coefficients computed from observations collected in the Lazarsfeld, Berelson, Gaudet study of the 1940 presidential campaign in Erie County Ohio. The 12 behavior items for which intercorrelations are given are the following:

1. The respondent's self-rating on interest.
2. Voting.
3. Listening to the Democratic Convention on the radio.
4. Listening to the Republican Convention on the radio.
5. Reading about the Democratic Convention in the newspaper.

6. Reading about the Republican Convention in the newspaper.
7. Knowing who Henry A. Wallace is.
8. Knowing who Wendell Willkie is.
9. Listening to political speeches on the radio.
10. Trying to convince someone about a political issue.
11. Having one's advice asked about candidates or issues.
12. Doing active political work.

centroid method, using the numerically largest coefficient in each column as the estimated communality of the column item. The centroid matrix is given in Table 2. Adequateness of factorization was determined by Hoel's criterion,² which is firmly based in probability theory. The criterion indicated that three factors were required to account for the observed intercorrelations. The conclusion is, therefore, that interest as denota-

TABLE 1. CORRELATION MATRIX FOR 12 POLITICAL BEHAVIOR ITEMS

	1	2	3	4	5	6	7	8	9	10	11	12
1		52	35	28	30	27	35	24	37	33	17	22
2	52		22	22	24	20	26	17	26	00	10	10
3	35	22		47	37	28	40	20	39	27	14	14
4	28	22	47		27	40	33	22	41	14	17	10
5	30	24	37	27		48	42	24	28	24	14	10
6	27	20	28	40	48		37	32	30	22	14	10
7	35	26	40	33	42	37		17	33	17	14	17
8	24	17	20	22	24	32	17		22	20	00	10
9	37	26	39	41	28	30	33	22		24	20	25
10	33	00	27	14	24	22	17	20	24		17	17
11	17	10	14	17	14	14	14	00	20	17		22
12	22	10	14	10	10	10	17	10	25	17	22	

The 12 activities whose intercorrelations are given in Table 1 constitute a denotative definition of psychological involvement in a political campaign. Let us now ask whether interest thus defined is a uni-dimensional trait, values of which could be placed on a single continuum, or whether it is multi-dimensional, *i.e.*, a composite of several uni-dimensional traits. This question can be answered by finding how many factors are required to account for the intercorrelations of Table 1. The matrix was factored by the

tively defined here involves not one but rather three dimensions.

Let us now turn to the problem of determining the nature of the three dimensions of interest. This problem can be solved most effectively by stating and testing a specific hypothesis as to the factorial composition of the correlation matrix.³

This study was begun with a definite hypothesis as to the nature of three possible dimensions of interest-in-the-election. There seem to be three possible roles which an individual can play in a political campaign: (1) He can play the role of a spectator, regarding the campaign as a dramatic specta-

TABLE 2. CENTROID FACTOR MATRIX FOR 12 POLITICAL BEHAVIOR ITEMS

	I	II	III	h ²
1—Interested	66	-36	-10	59
2—Votes	49	-45	22	49
3—Listens—D Convention	61	19	05	41
4—Listens—R Convention	57	21	13	40
5—Reads—D Convention	58	22	17	42
6—Reads—R Convention	58	26	22	46
7—Knows Wallace	57	09	09	36
8—Knows Willkie	40	03	10	17
9—Listens—speeches	58	11	-17	40
10—Tries to convince.....	40	13	-31	29
11—Is asked advice.....	30	-04	-26	29
12—Does active work.....	31	-07	-28	20

² Paul G. Hoel, "A Significance Test for Minimum Rank in Factor Analysis," *Psychometrika*, 4, 245-253 (Dec., 1939).

³ The usual rotational criterion in factor analysis is simple structure. Search for a simple structure, however, actually presupposes that the factor analyst has constructed his battery of tests with a particular hypothesis in mind—a hypothesis which if correct would lead to a simple structure. In this paper a more general rotational procedure is adopted. A hypothesis is stated, and from it are deduced the characteristics of a rotated matrix which would verify that hypothesis, regardless of whether the deduced matrix exhibits simple structure or not. This is in line with Thurstone's rotational procedure, but I believe it to be a generalization of it.

cle. (2) He can play the role of citizen, his primary concern being to decide how he should vote. (3) He can play the role of partisan, his major interest being to elect his candidate or party by influencing the votes of others. This does not mean that any given individual will be motivated by one, and only one, of these interests. One should expect any individual to be motivated by all three, but in different degrees. For example, one should expect some individuals to be more highly motivated by spectator than by partisan interest, and other individuals to be more highly motivated by citizen than by spectator interest.

It is now necessary to state this hypothesis in a way which will allow it to be tested. It is well known that the centroid factor matrix (Table 2) is but one of an infinite number of ways of describing the item-factor correlations. The hypothesis stated above, however, implies that the centroid matrix of Table 2 can be rotated into another matrix with specified properties. If the centroid matrix can be rotated into the hypothetically specified one, then this will to that extent verify the hypothesis. To specify this hypothesized matrix, it is necessary to deduce from the hypothesis the correlations between the postulated dimensions of political involvement and the behavior items of the correlation matrix. Because one purpose of this analysis is to determine the factorial composition of the respondent's self-rating on interest independently of the remaining items, the respondent's self-rating will be ignored in deducing the properties of an acceptable rotated factor matrix.

(1) Consider a hypothetical person who exhibits a marked degree of spectator-interest in the campaign but only average degrees of citizen-interest and partisan-interest. Purely as a spectator he should not vote more frequently than on a chance basis, which means that the correlation between spectator-interest and voting should be zero. He should, however, listen to and read about the conventions, which are large-scale dramatic productions, with considerably more than average frequency. He should also with more than average frequency know something about Wallace and Willkie because of this listening and reading. He should also listen with more than average frequency to political speeches on the radio because of their

dramatic nature. In other words, there should be positive correlations between spectator-interest and behavior items 3 to 9.

But such a person should not try to convince others more frequently than on the average that his own political convictions are correct, because he should not have political convictions with more than average frequency. Nor should this person become identified in the community as a politically active figure and therefore do active political work or have his advice asked more frequently than on a chance basis. In other words, there should be zero correlations between spectator-interest and behavior items 10 to 12.

(2) Now consider a hypothetical person with a marked degree of citizen-interest in the campaign but only average degrees of spectator-interest and partisan-interest. He should vote with more than average frequency, obviously, and therefore citizen-interest should be positively correlated with voting.

He should not, on the other hand, engage in partisan activity with more than average frequency, for he exhibits only an average degree of partisan-interest. Purely as a voter, he should not try to convince others of his own political convictions with more than average frequency. Nor should he become identified in the community as a politically active figure and therefore have his advice asked more frequently than on a chance basis. Nor, for the same reason, should he do active political work. Citizen-interest, in other words, should show zero correlations with behavior items 10 to 12.

In fact, in view of Lazarsfeld, Berelson, and Gaudet's findings, citizen-interest should not be correlated with any other behavior item in the correlation matrix (ignoring the respondent's self-rating on interest) except voting. It was reported in *The People's Choice* that half of the voting public knew which party it would vote for before the beginning of the campaign—before the conventions which selected candidates and before the political speeches and other propaganda stimuli—and maintained that choice throughout the campaign and actually carried it out at the polls. It was reported also that people who had made a choice tended to expose themselves only to propaganda which reinforced that choice, i.e.,

only to the propaganda of their own side. In view of these findings, it seems unlikely that citizen-interest would be correlated with listening to the conventions or reading about them, or even with knowledge about the candidates or listening to political speeches. For example, if Democrats tended to listen only to the Democratic Convention and Republicans tended to listen only to the Republican Convention, there would be zero correlations between citizen-interest and listening to the conventions. Or if Democrats exhibited knowledge about Wallace but not about Willkie, and Republicans exhibited knowledge about Willkie but not about Wallace, as seems rather likely, there

interest and behavior items 2 to 6 should be zero.

One should, however, expect such a person with more than average frequency to have some knowledge of *both* Wallace and Willkie, since this knowledge should have obvious partisan utility. One should also expect him with more than average frequency to try to convince others of his own political convictions, to do active political work, and, because of his identification with the political scene, to have his advice asked. One should also expect him to listen to political speeches with more than average frequency, for the purpose of getting material which would be of use in influencing the opinions of others.

TABLE 3. COMPARISON OF PREDICTED AND OBSERVED FACTOR MATRICES

	Predicted			Observed		
	S	C	P	S	C	P
1—Interested	?	?	?	0	+	+
2—Votes	0	+	0	0	+	0
3—Listens—D Convention	+	0	0	+	0	0
4—Listens—R Convention	+	0	0	+	0	0
5—Reads—D Convention	+	0	0	+	0	0
6—Reads—R Convention	+	0	0	+	0	0
7—Knows Wallace	+	0	+	+	0	0
8—Knows Willkie	+	0	+	+	0	0
9—Listens—speeches	+	0	+	+	0	+
10—Tries to convince	0	0	+	0	0	+
11—Is asked advice	0	0	+	0	0	+
12—Does active work	0	0	+	0	0	+

S= Spectator-interest, C=Citizen-interest, P=Partisan-interest.

would be a zero correlation between citizen-interest and knowledge about either of the candidates.

(3) Consider now a hypothetical person who shows a marked degree of partisan-interest in the campaign but only average degrees of spectator-interest and citizen-interest. His major concern will be with influencing the votes of others. Since he has but an average degree of citizen-interest, he should not show more than a chance tendency to vote, and therefore the correlation between partisan-interest and voting should be zero. Nor should this person show more than chance tendencies to listen to or read about the conventions, since attending to the conventions has no partisan utility. In other words, the correlations between partisan-

In other words, one should expect partisan-interest to show positive correlations with behavior items 7 to 12.

The stated hypothesis, in short, implies that the centroid matrix of Table 2 can be rotated into another matrix with properties which are specified on the left side of Table 3. In Table 3, a 0 indicates a correlation which should be effectively zero, traditionally accepted as lying between $-.20$ and $.20$, a + indicates a substantial positive correlation, and a ? indicates an undetermined value which has only to make sense in terms of the hypothesis. If the hypothesis is correct, it should be possible to rotate the matrix of Table 2 into a structure which matches that of Table 3. The usual rotational procedures, however, which are concerned with searching

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for simple structure, are not designed to solve the problem of rotating to a specific hypothesized matrix, and it is necessary to adopt another approach to the problem.⁴

Table 4 shows the result of attempting to rotate the centroid matrix of Table 2 into the

TABLE 4. ROTATED FACTOR MATRIX

	S	C	P
1—Interested	—03	47	33
2—Votes	00	59	00
3—Listens—D Convention...	43	—03	09
4—Listens—R Convention...	47	—04	—01
5—Reads—D Convention.....	50	—03	—04
6—Reads—R Convention.....	56	—06	—10
7—Knows Wallace	36	07	05
8—Knows Willkie	25	09	01
9—Listens—speeches	24	—01	30
10—Tries to convince.....	10	—11	38
11—Is asked advice.....	—04	04	33
12—Does active work.....	—07	07	36
S Spectator-interest	100	57	50
C Citizen-interest	57	100	39
P Partisan-interest	50	39	100

predicted pattern shown in the left side of Table 3. The entries which by hypothesis should be large are printed in bold-face type. The entries below the factor matrix give the correlations between the factor scores.

The actual values in the rotated matrix, however, are not so important as is the pattern they show. This pattern is given in the right side of Table 3 for comparison with the pattern predicted from the hypothesis. In the left side of Table 3 (neglecting the first row) are 33 predicted "values" for item-factor correlations, and 31 of these predicted values duly reappear in the right half of the table. This merits a claim of a reasonable degree of verification for the hypothesis.

Let us consider the two instances in which the observed and predicted matrices do not agree. The prediction was that in the rotated matrix there would be substantial positive correlations between partisan-interest and knowledge of Wallace and Willkie, while actually these values are effectively zero. The prediction was made on the assumption

that knowledge of *both* candidates would have partisan utility. The assumption was, in other words, that a pro-Democrat partisan would have knowledge of both Wallace and Willkie, and that a pro-Republican partisan would also. These effectively zero correlations are not consistent with this assumption. They are consistent instead with the assumption that a partisan would tend to have knowledge of his own candidate only, and while this seems reasonable also, there is no observational material with which to check it.

Consider now the correlations of scores on the three dimensions of interest with the respondent's self-rating on interest. The self-rating correlates positively with citizen-interest and partisan-interest, but effectively zero with spectator-interest. In view of Lazarsfeld, Berelson, and Gaudet's definition of interest as meaning having one's interests involved, this is precisely what should be expected. A person with citizen-interest or partisan-interest in the campaign definitely has his interests involved, the one in electing his candidate by voting and the other in electing his candidate by influencing the voting of others. However, a person who exhibits only spectator-interest, who regards the campaign primarily as a show, does not have his interests involved in the same sense, and hence the zero correlation between spectator-interest and the respondent's self-rating.

Finally, consider the correlations between scores on the three dimensions of interest. The matrix of correlations between factor scores, shown at the bottom of Table 4, shows that scores on the three dimensions of interest are themselves positively correlated. There is a definite tendency, that is, for persons with high scores on one of the dimensions to have high scores on the others also. While there are three dimensions of interest, and people participate differentially with respect to these three dimensions, there is also a tendency toward wholesale participation in all 12 of the activities which were used to define interest denotatively. Not only are there three separate dimensions of interest, but there is also what might be called a generalized interest as well.

The results of a factor analysis can be stated in different ways. In the preceding

⁴ L. L. Thurstone, *The Vectors of Mind*, University of Chicago Press, 1935, pp. 171-177.

analysis a form of statement was used which permitted a clear-cut identification of the nature of the three dimensions. The result was three positively correlated factors. This result, however, might be stated somewhat

differently. One might postulate a general factor of interest, plus three group factors corresponding to the three dimensions above, and this is perhaps the most useful way of stating the results of this analysis.

THE PRESENT STATUS OF SOCIAL THEORY *

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THE NATURE AND FUNCTION OF SOCIAL THEORY

THE traditional meaning of the term Social Theory refers to a category of ideas and substantive content which we associate with the work of such men as Comte, Spencer, Toennies and Durkheim, Sumner, Cooley, Simmel and Max Weber. The familiar matters which these names evoke give us a preliminary bearing on the nature of Social Theory. We shall presently discuss its salient characteristics. However, from the start I wish to dissociate myself from likely implications suggested by the identification of Social Theory with the legacy of thought inherited from the great, classical sociologists. These implications are commonly the notion that Social Theory is not an active and vital division within the general field of sociology, but rather a kind of Hall of Fame, a sociological Olympus, in which we enshrine illustrious members of our profession; and the idea that Social Theory does not represent a special kind of inquiry which yields cumulative achievements and proceeds from a basis of common interest, but is a haphazard collection of the effusions of brilliant minds. In contrast to these views, I recognize in Social Theory a special and important function which some sociologists have performed in the past and others will have to perform in the future, along with the many other tasks they have elected to pursue. Social Theory is a going concern and not a heritage incapsuled in the works of some eminent forefathers who are presumed to have laid the foundations of

sociology. It is an integral part of the fund of knowledge which we are accumulating and, therefore, a continuously vital and growing occupation to which the creative minds of each generation may be expected to contribute.

What are some of the distinctive features of the achievements which we classify under the term Social Theory?

1. *The Pioneering Function of Social Theory*

The most significant characteristic of these achievements is their function of playing a pioneering role in the advancement of sociology. Pioneering ideas are those which provide new directives and which open up new fields of inquiry. There are many examples upon which we could draw to illustrate this function of Social Theory. I shall limit myself to one that deals with the delineation of the sociological approach.

The foundation of the social sciences was laid down at the turn of the eighteenth century by a remarkable group of writers whose work demonstrated for the first time the rationale for the abandonment of medieval thinking about man and society. The key principle developed by these moral philosophers, as they called themselves, was that human behavior and social phenomena are subject to the law of natural causation. They showed the universal applicability of scientific method and they marshalled abundant evidence for the view that there is no discontinuity between the processes of nature and the life of man. These writers proposed a new task: the empirical study of man and society; the search for regularities of function and process and for the correlations and laws that govern human life. Origins and

* Paper presented at the annual meeting of the American Sociological Society at Chicago, September 5-7, 1951.

continuities, the factors which determine human actions, the course of history—all these issues, so neatly settled by theology and metaphysics—became problematic and were opened to inquiry. In pursuit of this task it soon became clear that social reality could be studied from different points of view, each of which requires specialization. Gradually different social science disciplines arose, among them sociology.

The core of sociological thought was already implicit in the writings of the moral philosophers. This was the idea of the priority of the group over the individual and of the influence of factors generated by group life upon the behavior of group members. Comte's work was the first systematic study based on historical and anthropological data which pursued the implications of this viewpoint. In his study Comte addressed himself to the particular question of the role of the stock of ideas common to a group in supporting consensus, which he conceived to be the basis of social organization. He noted their function in the integration of society, and observed how ideas, consensually validated, influence particular social institutions and in turn are affected by them. Further, his study directed attention to a fertile field of inquiry of comprehensive scope which justified the establishment of a special discipline. Its task was to be the tracing out in detail of the operation of every manifestation of group life as determinant of social development, culture, and personality.

This sociological approach which Comte initiated was supported by the work of Spencer, who established numerous relations between particular aspects of social organization and interhuman behavior. Subsequently, its significance was brilliantly demonstrated in the works of Durkheim and Simmel.

Durkheim further validated the sociological approach by virtue of his theory that the causes of aggregate effects and of uniformities of behavior in association, which he called social facts, are internal to society. He demonstrated this theory in his study of suicide in which he showed that group cohesion is a factor that accounts for differential rates of suicide. In consequence of this discovery, social integration became a central theme that has since directed most functional studies in sociology. The develop-

ment of the sociological analysis of crime which relates it to community disorganization and differential association is one of the results of the orientation provided by Durkheim.

Simmel expanded Durkheim's theory when he showed that uniformities of social behavior are not only contingent upon group attributes, but upon attributes of interpersonal relations as well. Simmel was able to disclose similarities and connections in interpersonal modes of behavior which has made it possible to recognize uniform patterns of behavior that underlie diverse cultural manifestations. The inclusion of these recognizable patterns of interaction among the facts "internal to society" and, consequently, the consideration of such forms of human behavior as conflict, subordination, secrecy, and so forth, as elements in sociological analysis, has greatly enlarged the range of social inquiry.

Currently, this approach is employed under a new label—that of structure-functional analysis.

This gradual unfolding of a sociological analysis of social reality which has provided new directives and successively opened up new fields of inquiry, is also an illustration of continuity and growth in Social Theory. In conformity with the logical proposition that the most fundamental characteristic of any science is the type of cause and effect relation which it assumes, and the class of systems which it thereby selects as isolable, there has been, since Comte, a progressive elucidation of the assumption upon which sociology is founded, namely, that relational and group attributes are dynamic qualities. Furthermore, there has been a progressive differentiation of the situations in which these social elements function as antecedents and consequents of social behavior.

2. *The subject-matter of Social Theory*

A second salient characteristic common to the achievements in Social Theory is the nature of the questions which they attempt to answer.

There are two basic needs which scientific inquiry is designed to fulfill. We desire information which will enable us to grasp particular problems and to furnish guides towards their solution. This information we obtain through the analysis of carefully

gathered empirical data. It becomes useful to the extent that we succeed in formulating our findings in operational generalizations—rules, correlations, schemes of classification, and laws. However, the need for the clarification of general problems is as important as is orientation to particular situations. This requires a synthesis of available facts in the search for universals and for underlying implications. In the case of sociology, this task calls for the interpretation of the Social Process rather than particular social processes, of Society rather than particular societies, of the role and destiny of Man rather than of particular individuals.

It is Social Theory that deals with these general problems. They are formulated with reference to broad categories such as the individual and the group, heterogeneity and unity, freedom and constraint, social integration and individuation, the direction of social development, and determinants of social change. These categories define the nature of the questions which have concerned Social Theorists. They are reflected in Ward's theory of telic evolution as well as in Ogburn's theory of social change; in Cooley's study of the primary group and in Weber's concern with bureaucracy; in Pareto's theory of derivations and in Park's conception of symbiotic relations. In fact, it is customary to assign statements to Social Theory when they have for their theme the general categories in terms of which, as sociologists, we conduct the search for universals and for meaningful synthesis. If for no other reason, this search is fully justified in that it serves the intellectual need for grasping the whole and for probing the ultimate implications of social living.

However, there are other justifications for this quest. First, there is the fact that it is from preoccupation with general questions about society that the ideas which have played a pioneering role in sociology have frequently emerged. Tönnies' work is a case in point. Tönnies concerned himself with the general question of the direction of social development and its effect on social integration. He discerned a pattern in diverse facts about particulars of social organization. He formulated the theory that social development can be conceived as movement away from a type of social organization in which control is exercised by associations united

by a bond of sentiment, to a type in which groups held together by opportunistic interests are dominant. The theory raised a fateful issue, for it implied the ascendancy of influences which in time progressively increase social disintegration and, in consequence, accelerate the rate and increase the magnitude of social crises. This possibility invoked a whole set of inquiries within the framework of Tönnies' theory. For example, the question concerning the process of transition from one type of society to the other led to the development of urbanization as a special field of sociological study. The postulation of the waning influence of *Gemeinschaft* relations led to a re-examination of their role and to the discovery that these relations function in ways previously unnoted. The study of these functions has evolved into a specialized field of sociological interest whose subject is the informal group. Questions about the *Gesellschaft* relations stimulated Weber's examination of rationality as a dynamic element in the social process and gave rise to sociological analysis of the power structure of contemporary society.

A second justification for the concern of Social Theory with general questions is the fact that theory serves as a standard for evaluating the significance of a research project and its contribution to the continuity of sociological inquiry. The results of an inquiry can, of course, be important even though they cannot be applied to other situations; in which case, the results may satisfy curiosity or facilitate the completion of a special task. However, in order that an inquiry be recognized as a contribution to the accumulation of a body of scientific knowledge, it must be linked to some general idea or orientation which it elucidates, expands, or refutes. A first-rate study will most likely combine all three modes of significance. Durkheim's study of suicide is a relevant example. It caters to our curiosity about a puzzling mode of human behavior; it suggests procedures for decreasing rates of suicide; above all, it extends our insight into the relation of the individual to the group and adds an important analytical concept—that of group cohesion—to the sociologist's tools. The case of Thomas' and Znaniecki's "Polish Peasant" is similar. It too satisfies curiosity by informing us about the ways of strangers in our midst; it suggests

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many practical procedures for coping with the problem of acculturation; but, most importantly, it elucidates the theory of the "humanistic coefficient" and, in particular, the function of subjective factors such as attitudes and tendencies in social situations. On the other hand, we find that such a study as Weber's "Sociology of Religion" suggests no practical procedures. It does, however, expand Sumner's idea that the ethos of a group is a determinant of patterns of conduct in varied areas of social life. It also bears upon the theory of historical materialism in so far as it suggests the advisability of its reappraisal. It is for this reason that Weber's study is recognized as a significant contribution to the body of sociological knowledge.

CURRENT CRITIQUE OF SOCIAL THEORY

With this brief characterization of the nature and function of Social Theory as a background, we can proceed to a consideration of its present status. If we may paraphrase current sociological terminology, we may state in general that the achieved status of Social Theory is high, if for no other reason than that we continue to recognize as masters of our profession those sociologists whose chief contributions have been the development of general ideas. In contrast, its ascribed status must be rated as low in view of the prevailing tendency to regard discussion of social facts in general categories as an improper form of scientific reporting. In my opinion, such criticism is misdirected. I shall attempt to justify my position by examining some of the views which appear to be responsible for the ascription of low status to Social Theory at the present time. Some of these stem from certain stereotyped opinions about the nature of Social Theory, others arise from unwarranted methodological considerations.

1. Social Theory as System-building

Among the stereotypes that have given rise to criticism of Social Theory is one that alleges that a Social Theorist is a system-builder and, therefore, out of tune with the times which demand the production of research monographs. We find this notion expressed, for example, in Barnes' comment on his recent book on the history of sociol-

ogy. "The volume", he says, "brings the history of social thought down to the era and stage where systematization was gradually, but rather completely, replaced by specialization in some more restricted field of description and analysis. It is not likely that there will be more attempts to create systems of sociology, hence this volume may reasonably be regarded as the definitive summation and appraisal of this type of intellectual enterprise in the field of social thought."¹

The stereotype which regards Social Theorists as system-builders confuses the systematic development of an idea, or the marshalling of diverse data according to some organizing principle, with the schematization of the content of a science. The systematic development of an idea or the marshalling of data is not equivalent to the elaboration of a system of sociology. There is no Comtean or Spencerian sociology, but there is a Comtean theory of the hierarchy of the sciences and a Spencerian theory of the social organism. A system of sociology is the ordering of the content and concepts of the discipline. A textbook comes nearest to such a schematization of sociological material. Textbooks, however, are seldom contributions to Social Theory, nor can it be claimed by any stretch of the imagination that the masterpieces of Social Theory are textbooks in sociology. It is true, of course, that these masterpieces are not research monographs reporting the results of empirical investigations. They are monographs of another kind in which the implications of a basic idea are developed in terms of which the meaning of various social facts is interpreted.

2. Social Theory as "Philosophising"

Another stereotype is the notion that Social Theory is philosophy and not science. One need not go into semantic discussions to argue the point. Let us agree that the terms "general idea" and "philosophical idea" are equivalent. Philosophical ideas can be legitimately rejected when they represent bad philosophy as, for example, one that appeals to authority for confirmation, or that argues from a priori assumptions. Good philosophy,

¹ Barnes, H. E., *An Introduction to the History of Sociology*. Chicago: University of Chicago Press, 1948, p. x.

however, is an essential part of science, which cannot dispense with general ideas and principles. For this reason, the accusation that Social Theory is "philosophical" carries no stigma. It simply defines the function of Social Theory, which is the discovery of the fundamental assumptions and general implications of the data of sociology. Let those among us who worry about the effect of dealing with these matters upon their professional standing take heed of a comment recently made by a natural scientist who is also the president of a great university. Conant observes that those among social scientists who are eminent are in fact social philosophers, even when they deal with current problems. In this connection he continues: "Why should there be any objection to the use of the term? After all, philosophers, like mathematicians, have always stood at, or near, the top of the intellectual caste system of our universities."²

It may suit the temperament of some people who prefer to be matter-of-fact and to stick closely to what is directly observable or manipulable, to cast out Social Theory from the precincts of sociology on the ground that it is a philosophical venture. However the general questions which are continuously in the background of every social inquiry cannot be dismissed. They can be ignored only at the risk of leaving the data rootless and, therefore, without issue. There is no doubt that Social Theory contains a higher degree of speculation than do limited ventures into generalizations. Speculation which is based upon purely imaginary associations must be relegated to poetry or metaphysics, but speculation which proceeds from observed associations is an essential element in any scientific quest. Of necessity, there will be more of it the broader the scope of the problem concerned and the greater the reliance that must be placed upon the skill of a brilliant mind for probing underlying connections.

It can be demonstrated that there is a degree of speculative thought in every science, and that among all scientists there are some who, by temperament, are inclined to dismiss it as "philosophising". Analytical-minded physicists, for example, tend to re-

sent the synthetic constructs of a Jeans, an Eddington, and even an Einstein. Nonetheless, most of the major advances in the natural sciences have come about precisely through the work of synthetic-minded scientists who have had the courage to use their imagination to relate the facts of their science to the fundamental issues that give them meaning. A relevant comment appeared in a recent publication on Cosmology which, as a branch of physics, occupies a somewhat analogous position to that of Social Theory in sociology. "Cosmology has to face the problem of infinity, not as a mathematical abstraction, but as a physical reality. This confers on all its problems a particularly speculative character and, at the same time, a particular attraction. . . . No definite answers can be expected. . . . Despite that, attempts to frame a unified picture of the whole world have not ceased and they have been of great scientific value because they have considerably widened and deepened our understanding of the fundamental laws of nature."³

3. *Inappropriate Subject-matter*

A current form of criticism of Social Theory implies the inappropriateness of its subject-matter. It suggests the retention of the name, Social Theory, but rejects its traditional substance and function. A case in point is Parsons' attempt to dispose of Social Theory as it has existed to the present by defining it as a system "which is a body of logically interdependent, generalized concepts of empirical reference," and ideally closed so that "every logical implication of any proposition of the system is stated in some other proposition in the same system."⁴ This definition attempts to steer Social Theory away from substantive formulations towards the formalistic task of developing a single major conceptual scheme for sociology. We may express doubt as to the possibility of realizing such a formidable task which employs as a "reference group" among the sciences neither our neighbors, psychology or biology, nor even physics, but the rational science of geometry. Even were the

³ Finlay-Freundlich, E., "Cosmology," *International Encyclopedia of Unified Sciences*, k, No. 8. Chicago: University of Chicago Press, 1951, p. 1.

⁴ Parsons, T., *Essays in Sociological Theory*. Glencoe, Illinois: The Free Press, 1949, p. 17.

² Conant, J. B., *On Understanding Science*. New Haven: Yale University Press, 1947, p. 28.

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construction of a rational science of sociology possible, there is no valid reason why such a venture in conceptual methodology should be called Social Theory and be made to supplant all other tasks to which the term Social Theory has been traditionally applied.

Besides, there can be no coordination of concepts without a general idea of the sort dealt with by substantive Social Theory. In the absence of such an idea any attempt at integration will be an abortive effort. An example of such an inevitable miscarriage is a suggestion for the integration of the social sciences recently made by Professor Murdock.⁵ He points out that several enterprises in which different social scientists: psychologists, anthropologists, sociologists, and so forth, have participated, have shown a remarkable affinity between the concepts they employ. Murdock correctly accounts for this on the ground that, in every instance of human behavior, social, cultural, and personality factors mutually determine each other. He proposes a new science which will unify the interlocking subject-matter and conceptual tools of the different social sciences. He is vague about the nature of such unification and is particularly at a loss to find a name for the new science. Apparently no general theory is as yet available that would give form and substance to a Social Science in which the currently separate disciplines could be integrated in such a way that insight into social realities would be augmented. If Murdock had such a theory he would have no difficulty in finding a cogent name for the unified science. Instead, Murdock has had to resort to the popular device of coining new names by the use of initials. Combining the first letters of learning, society, culture, and personality he has come up with the eyebrow-raising word "Lesocupety". The last two letters stand for "theory" which, unfortunately, is conspicuous by its absence.

4. Social Theory is not Operational

So far we have taken issue with the criticism of Social Theory that proceeds from certain stereotyped or arbitrary notions

about it. There are two other lines of attack that I shall comment upon briefly. One involves arguments about unfulfilled expectations, the other questions the form in which Social Theory is presented.

Criticism along the first line is advanced chiefly by sociologists engaged in research who are aware of the necessity for a theoretical framework for social inquiry. Some of them, like Merton,⁶ argue that Social Theory fails in its function if it provides nothing more than general directives and value-orientations. He recognizes the need for "viable theory" which he designates as theory which "is now employed in guiding and interpreting research." However, he does not find that the kind of contributions which we usually classify as Social Theory provide the theoretical constructs which the present analysis of social problems requires. Therefore, he is inclined to relegate Social Theory in its traditional sense to the History of Social Thought. Merton wants Social Theory to have more immediate reference to research and expects it to throw light on the assumptions with which sociologists presently operate. Above all, he expects Social Theorists "to create small families of empirically verified theorems."

An example of criticism along the second line of attack is Stouffer's⁷ complaint that much of what goes on under the name of Social Theory is "slippery verbalization." He expects Social Theorists to develop propositions "that are stated in such form that inferences and predictions can be tested empirically and, if good, applied to practical situations". In short, he expects them to formulate hypothetical laws of the order: A interacting with B under condition C will tend to result in D.

Inasmuch as theoretical models and laws are the hallmark of science, we agree, as a matter of course, on the importance of constructing theorems, paradigms, or ideal types on which Merton insists. We equally recognize with Stouffer the desirability of stating uniformities in the form of hypothetical laws that can be tested experimentally. However, it is necessary in the interest of clarity to

⁶ Merton, R. K., "Discussion," *American Sociological Review*, XIII (February 1948), p. 164.

⁷ Stouffer, S., "Discussion," *American Sociological Review*, XII (April 1947), p. 11.

⁵ Murdock, G. P., "Science of Human Learning, Society, Culture and Personality," *Scientific Monthly*, 69 (Dec. 1949), pp. 377-81.

keep distinct interests apart by the use of appropriate terminology.

An essential part of all scientific work is a general activity called theorizing. Its aim is the ordering of facts. There are different modes of patterning facts, depending upon the end-in-view of the inquiry in progress. One of them is the *theorem*, the function of which is to provide a set of postulates from which implications can be derived by the application of pure reason, preferably through mathematical treatment. The construction of theorems is significant primarily in relation to a particular set of data which they help to analyze. The *hypothetical law* is another mode of ordering facts. It summarizes the results of a particular research and is the mode which serves our need for prediction. A third mode of ordering facts is the *general theory*, such as the atomic theory in physics or the group-attribute theory in sociology. A general theory is built upon the facts discovered by means of the use of theorems and other conceptual models from empirical data and which have been expressed in the form of laws, correlations, or other types of generalization. It involves synthesis and is directed to the formulation of propositions about universals.

We cannot expect general theories, which make up the body of Social Theory, to provide theorems that would fit particular research tasks, nor can we expect them to furnish us with the kind of generalizations that can only be derived from experiment or controlled observation. As I have mentioned, a general theory does provide directives for research and serves as a reference point for evaluating its significance. This is an important function. We do not criticize the theory of evolution for failing to function as a theorem from which we could deduce the line of development of a particular species, nor do we criticize the atomic theory because it does not state what atom A interacting with atom B will do under conditions C.

Thus it appears that some of the criticisms of Social Theory can be traced to the unwarranted practice of including all modes of conceptualization in sociology under the name Social Theory. Therefore it may be advisable to adopt a new term under which all theoretical constructs can be classified. I propose the term "theoretics." Social Theory would then be one of the categories of

"theoretics" and would be limited to the theories in sociology which are focused upon general questions involving universal underlying assumptions and basic interpretations.

5. Social Theory Lacks Validation

Finally, I should like to take issue with the criticism that pertains to the lack of validation for Social Theory. Stouffer's remark about "slippery verbalization" alludes to it. The validation of *any* proposition in the social sciences is a difficult task. Some of the difficulties stem from the fact that the social sciences deal with organized complexities that cannot be reduced to simple components to which mathematical calculus can be applied. The crux of the difficulty, however, lies in the conditions for experimentation in social inquiry. As Dewey⁸ has shown, the testing of a proposition derived from scientific inquiry requires its application to the resolution of a problematic situation. This implies, for example, that Durkheim's law of suicide is not being tested even by successful predictions made on the basis of it. Such predictions would merely establish the degree of generality of the hypothesis. Its test requires the institution of procedures that would actually change the rate of suicide through the manipulation of group cohesion. Furthermore, Dewey has shown that in social inquiry the resolution of problematic situations always involves some existential modification in the conditions in which people live in such manner that their lives will take a different course as a result. For this reason, no real testing operations of social science propositions can be instituted without social agreement.

This condition for experimentation can be realized only under specially favorable circumstances. In consequence, the social sciences are severely handicapped in the acquisition of operationally validated knowledge. For the same reason, their chances for devising constructive measures for the solution of social problems is greatly limited. For example, it is probable that the findings of psychiatrists, anthropologists, sociologists, and economists could be pooled to set up two or three alternatives for preventing an-

⁸ Dewey, John, *Logic, The Theory of Inquiry*. New York: Henry Holt and Company, 1938, p. 491 et seq.

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other world war. Presumably, the modifications required by any one of these alternatives would involve drastic social changes. Therefore, short of our becoming dictators, it is unlikely that we shall be given the opportunity of finding out which one of the alternatives would actually produce the desired result.

We cannot expect a general theory to be validated when the empirical inferences that can be drawn from it cannot be tested experimentally. However, we do have criteria for distinguishing between adequate and inadequate Social Theory. One of them is the fruitfulness of the directives it provides; another is the degree to which a wide sample of diverse facts corroborates a synthetic formulation.

By its very nature, a general theory is an open-ended proposition. It must continually keep in step with the acquisition of new factual knowledge. On the whole this has been true of Social Theory. Compare, for example, Spencer's "Principles of Sociology" with Sorokin's "Cultural Dynamics", Ward's "Applied Sociology" with Lynd's "Knowledge For What?", Carey's and Lundberg's disquisitions on physicalism, or Tönnies' and Homan's analyses of the informal group. We can discern in them a progression in exactitude and sophistication quite similar to that which we observe when we compare the research procedures of Le Play with those of Stouffer. A general theory, however, cannot be proved, nor can it be disproved. What was recently said about the fate of an old soldier applies with more truth to a general theory. A general theory never dies, it only fades away.

CONCLUSION

I assume that the ascription of low status to Social Theory is a passing phase in the history of sociology. When the change in the status of Social Theory occurs, what changes in general perspective will it imply? It will not mean that Social Theory will return to the position it occupied in the nineteenth century when it held a virtual monopoly on sociological interest. Social Theory will be cultivated as one of the major interests of sociology closely integrated with other fields. It will not mean that every aspiring sociologist will have to try his hand at it.

Each generation cannot be expected to produce more than a limited number of creative minds who possess the special gifts required for the construction of general theory. It will mean, however, that each generation will provide opportunities for creative work in Social Theory. It will seek to maintain Social Theory as a going concern by attracting and cultivating potential candidates for this task. This is not the case today when the prevailing emphasis on rapid specialization and the pressure of the demand for technically trained personnel discourages brilliant and creative minds from joining the profession on the one hand, and, on the other, diverts talented students by giving them neither time nor encouragement to test their abilities for the construction of general theories.

Social Theory, like cosmology, always has a particular attraction, especially to the beginning student in sociology. His first impetus usually leads him to questions about the basic implications of his chosen subject-matter and to search for the kind of orientation which it has contributed to the understanding of fundamental issues of social living. This initial impetus dies quickly if, as is rather generally the case at present, academic curriculae and professorial interests fail to provide the necessary encouragement and training for the pursuit of general orientations. The student soon learns to discount the masters in Social Theory and to abandon any attempt to emulate them when he discovers that they cannot help him to achieve the positions currently favored by the profession. Nevertheless, even the oldest masters, like Comte and Spencer, can be read with profit, for they reveal creative minds in operation and are rich in insights which stimulate further thought and probing. If one approaches their works with the expectation of finding answers to current problems of research and, not finding them, rejects the works as useless, one misses the lessons which their originality can teach. A famous namesake of mine, the mathematician Niels Abel, was asked how it was possible for him to have made a profound and original contribution to mathematical theory at his age, which was then twenty-three. He answered, "By reading only the masters." It is this kind of reading, which

does not look for answers but seeks stimulation for creative thought, that we fail to stress today in our training of young sociologists.

In conclusion, I may say that when Social Theory is restored to its rightful place, there

will result not only a renewed appreciation of the masters, but new masterworks will be forthcoming which will serve with increasing exactitude and penetration the intellectual need for interpretations of the basic issues concerning society.

DISCUSSION *

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In the course of a relatively short paper dealing with a large subject, Professor Abel offers us a long awaited and much needed classification of the ways in which social scientists think about their subject matter.

Under a general category designated as "theoretics" he discerns three separate modes of conceptualization. One of these involves the construction of types or models designed specifically to facilitate the organization of particular empirical investigations and the analysis of their results. A second aims at the formulation of hypotheses depicting in generalized terms uniformities observed in the course of investigating limited situations. The third branch of theoretics, and the one for which Professor Abel would have us reserve the name "social theory," has a much more general function. Where the construction of theorems or hypotheses necessarily has reference to concrete problems in social situations and processes, social theories deal with universals—"underlying assumptions," "basic interpretations," "the Social Process," "Society," "Man."

Professor Abel is well aware that his view of theory is uncommon and unpopular within a discipline now marked by a preponderant interest in specific empirical investigations where conceptualization is admitted only in the full-dress uniform of the "heuristic device" or the timid hypothesis bordering on a tautological statement about trivia. Respect is due the courage with which he undertakes a defense of theory in the "grand style."

Professor Abel's practical point of departure seems to lie in the observation that while our current research interests are dictated largely by basic ideas inherited from Comte or Spencer, Durkheim or Simmel, we pay insufficient attention to the kind of theoretical activity in which such men were engaged and to the need

for a continuation of that activity. While we acknowledge our debt to them and pay our respects, we fail to recognize our responsibilities in carrying on the kind of work they did. We tend to forget that a search for "theories of the middle range" involves some knowledge of the limits that define the middle. Moreover, we must realize that the substantive content of a theory of the middle range depends upon the substantive reference of a theory of the "higher" range, and if we do not engage in reformulating and creatively changing the latter, then the content of the former must take the old shape.

While accepting Professor Abel's analysis of the situation and admitting the propriety of his plea for a reorientation toward the tasks of social theory, I am left somewhat at sea by his proposals for correcting that situation and elevating social theory to its old status. He suggests that social theory is produced by "creative minds" with "special gifts" for conceptualization. He urges us to encourage students who have the "potential" for theorizing. We cannot, he observes, expect any generation to produce more than a few such minds, but we must not discourage them by over-emphasizing specialization and narrow technical training. He makes the specific suggestion that creativity can be fostered by reading and study of the "masters" in social theory.

This is sound advice in a situation where the stock warning to a student writing his doctoral dissertation is to limit himself "to something he can handle"—which too often means that he must limit himself to something that is familiar to the instructor. We are perhaps too quick to judge our students by ourselves and aim, consciously or unconsciously, at a faithful duplication of our point of view in as many Ph.D.'s as possible.

Yet there is in Professor Abel's remarks the implication that fruitful social theory is somehow merely the product of a rare and individual quality of mind; that individual minds will

* Paper read at the meeting of the American Sociological Society, Chicago, Illinois, September 5-7, 1951.

create theory if no obstacles are placed in their way. This impression might arise only from the necessary brevity of Professor Abel's paper, and had time allowed he might have been interested in detailing the *conditions* of creativity. There is, admittedly, an intangibility about this question that seems to deny definition. Some men are creative, and some are not. Insight, intellectual flair, the ability to see obscure relationships, to arrive at useful classifications and to devise fruitful comparisons, the peculiar aptitude for discerning difficulties in existing theory, the singular facility for eliciting uniformities from diverse data—all are intellectual operations most difficult to grasp or communicate. Association with the "masters" through reading does seem to prepare students for these modes of conceptualization. We observe that, by a kind of contagion, students who have associated with creative theorists often acquire some measure of this ability. But these are not working explanations of the sort of productive thinking that Professor Abel seeks to encourage. They are not explanations that can teach us or our students how to go about thinking creatively. And because of their inadequacy, we are left with the discouraging suggestion that each of us must await an inspiration that might never be his because of some constitutional indisposition.

It is this mystery enveloping the theorizing operation, I would suggest, that is responsible for the low status of social theory lamented by Professor Abel. And it is only the impression that he might quite unintentionally have contributed to the mystery, that prompts these critical remarks. When a student reads that Comte attributed his facility for grasping universals to the inspiration afforded him by Clotilde de Vaux, he can hardly be blamed for questioning the resulting theory. When Spencer tells us that ideas just came to him and that he never was puzzled about anything, the student can properly seek a different kind of intellectual operation. When Spengler advises him to live life deeply and with feeling, when Weber urges him to feel himself into the situation under analysis, when Marx tells him to become intensely conscious of his historical class position, and when Freudians insist that he submit to a special form of critical self-analysis—all these for the purpose of properly conceptualizing human experience—then it is little wonder if the student regards theorization with awe if not suspicion and turns to the safer venture of merely compiling information.

The aim must be, then, to remove this aura of mystery from theorization and represent it as an operation accessible to the industrious and the skilled rather than the inspired or the

cleansed. I know that it is an epistemological heresy nowadays to say so, but I believe that we can achieve this clarification only by accepting the rather pedestrian notion that the construction of useful theory depends first of all upon a mass observation and classification of facts identified as such under workable standards of evidence. Whatever else is required—and of course there is more—this is fundamental. This is, if we are to profit from our knowledge of the history of Western science, both an indispensable condition of creative thinking and a necessary antidote to the belief that theory dwells as a divine spark within the chosen few, ready to be elicited by an act of pure reason.

Perhaps this means reducing social theory to the second order of theoretics. Still, Professor Abel is far from denying the intimate relation between theorization and observation of particulars. He points out, for example, that between Tönnies' concern with the general question of social development and social integration, and his formulation of a certain theory of social development, there intervened his discernment of a pattern of particulars. In a more general discussion of this process, he observes that a theory is "built upon the facts discovered by means of the use of theorems" and "expressed in the form of laws." The facts are discovered, not constructed; they are found in the empirical data, not in statements as such. In this whole process, as Professor Abel rightly stresses, a vital link is concern with a general question. Now, I do not think that it could be maintained that Tönnies' "general question" was spontaneously generated in his mind. The only operational conception we can reach is that the general question was related to observation of particulars by Tönnies or by somebody else whose work Tönnies knew. Whatever gap exists between observation and the formulation of a general question, those two elements must be present in that order; and the actual generality of the question must be related in explicit and public fashion to the generality of the observation.

When social theorizing is anchored to observation rather than to inspiration, assessment of the "masters" can proceed from a different perspective. When we note the misleading features of Spencer's theory we need not attribute this to his lack of genius or a flaw in his "synthetic-mindedness." The plainer fact emerges that Spencer just was not a very careful or industrious observer, and that his theory was related not to his observations but to his intellectual inheritance. Our dissatisfaction with Spencer can then be translated into a positive resolve to avoid his sloppy scholarship rather

than into a negative dull hope that a more refined synthetic mind will appear.

These criticisms are not presented as an antithesis to Professor Abel's general position. I join heartily in his concern about the low status of social theory and in his apparent opposition to tendencies that would confine conceptualization to a narrow systematics. I believe, however, that if social theory, in his sense of the term, is to be defended against charges

of "slippery verbalization" on the one hand, and is not to be crowded out by theorem and hypothesis on the other hand, then our concern must be to make explicit the operation of the creative or synthetic mind by reference to the historical conditions of creativity in the intellectual experience of men. I should like to look forward to the results of Professor Abel's attention to this question, results that he could hardly have presented in the short paper under discussion.

DISCUSSION *

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Among the functions of meetings, one major purpose might be expected to take precedence over all others: that is, sessions should provide the membership with an organized résumé of the annual progress of the whole discipline. Despite valiant efforts to achieve it, however, such a summary view is often lost in the unmapped country surrounding a theme; or, in less systematic attempts, it is hidden from sight by the billboards of proprietary products. Scholarly free enterprise in sociological research is perhaps too multiple and various an undertaking to permit a strict and orderly accounting of its gains and losses during any twelve-month. Yet if one accepts the belief that the paramount task of sociology as science is the production of scientific theory, it ought to follow that this session called "Sociological Theory" would be the most important part of the entire program, a touchstone of disciplinary development and a map of future progress.

From past experience I would anticipate little more from a session under this label than an interesting pedagogical *causerie*: some skillful exercises in logical exposition; a few sound pleas on the side of the angels for larger quotas of theory in research design; and a modicum of "insights"—whatever they may be—into problems of conceptual relationships. But if I were looking for substantial contributions to theory as such, I would take my chances in almost any other symposium, barring only those on methods and teaching.

I believe that sociological theory should henceforth be stricken from the list of subject-topics of the annual meetings. It doubtless served a purpose of sorts in the salad days of

our discipline when lip-service to the canons of science would legitimize many a soaring flight of philosophical speculation. But to continue to list theory as we do today, simply as one more "field" of sociological interest and endeavor, ignores one of the crucial developments in sociology during the last generation; that is, the accelerating tendency of theory to permeate all research that is worthy of the name. A growing recognition of the inevitable linkage between "fact" and "theory" has made us realize that even the simplest descriptive statement has its quota of theory. Every sociologist worthy of the designation of scientist, no matter what may be the subject of his research, will shape his work in terms of the best and most relevant theory known to him—and will then try to improve upon it. Malinowski used to tell how his mentor advised him on his departure for his first field-trip to forget everything he had ever heard or read about theory, and to get in there and collect facts. We may assume that he received this advice gracefully at the time; but years later he answered it: "Every observer should ruthlessly banish from his work conjecture, preconceived assumptions, and hypothetical schemes, but not theory." Consequently any classificatory scheme which persists in listing theory *pari passu* with substantive fields where theory is really made—such as the family, racial and cultural relations, industrial sociology, and the like—cannot fail to reinforce the unfortunate impression that theory is an isolate, a body of self-contained truth that is separable from the massed empirical data which spawned it. Here is a false and misleading dichotomy, one that not only fails to reflect current realities of sociological research but also shores up an essentially barren specialization.

If more harm than good will result from a continuing isolation of theory as the special

* Paper read at the meeting of the American Sociological Society, Chicago, Illinois, September 5-7, 1951.

preserve of a few strategists who make their own ground rules, it behooves all of us to take a more active part in theory-production. The persistent lack of a widely accepted set of tested propositions about human group behavior—an interdependent, internally consistent, and open-ended body of truth about relationships that goes by the name of *systematic theory*—is a hindrance to more rapid science-building in sociology. It means, for instance, that we are forced to direct most of our investigations toward individual theories, limited hypotheses, and similar bits and pieces of the grand design. This does not, or should not, relieve any of us of responsibilities for im-

proving as best we can the conceptual and theoretical superstructure of our discipline. To fulfill its dynamic and seminal purpose, systematic theory must be built by many for mass consumption, not by the few for limited circulation. Therefore, I suggest that the gap created by the abolition of theory as a separate field might profitably be filled by a session which would work on the larger problem of reconciliation of theories from all fields of our investigation. Unless such a working synthesis can be put into concrete form soon, the centrifugal forces now at work in sociology may scatter it all over the academic countryside before the end of the century.

ALL-OR-NONE ELEMENTS AND MATHEMATICAL MODELS FOR SOCIOLOGISTS *

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MATCHING MODELS AND DATA

THE argument of this paper is: 1) that the use of mathematical models for predicting social phenomena requires matching the social and mathematical conditions; and 2) that all-or-none elements often help this matching—as illustrated in the particular cases of the normal probability distribution and the logistic growth curve.

We assume that sociologists, being scientists, are trying to predict social phenomena better. We note that they are using mathematical models increasingly for such predicting. For mathematical models (such as equations, formulas, or systems of mathematical operations) specify some system of relations among specified variables under specified conditions or assumptions. Such a model is then hypothesized to describe the phenomena. Its regular form may seem oversimplified at first in omitting some of the overlaying variables that complicate it in any life situation. The hypothesis is verified by the size of the indices of close fit and of good fit—which measure respectively the degree of agreement between model and data, and the probability of recurrence of such agreement in many similar samples. If the

fit is always close and good, the hypothesis is confirmed and the model states a social law. If the fit is loose and bad (i.e., shows little agreement and is also unreliable) further research is needed to find out whether the model is unfit, or partly fit, or misfitted, or unsurely fitted. It may fail to fit because it is an inappropriate model, or because it is inadequate in part, or because it was incorrectly applied, or because the sampling was too small to give a sure, that is, a reliable, fit.

But testing a model by the above procedure of merely fitting it to the data is superficial model analysis. More thorough model analysis calls for matching the conditions and operations. The mathematical conditions underlying the model should be matched, with one-to-one correspondence as much as possible, to the social conditions underlying the observed data. Also the mathematical operations which produced the model should be matched with the social operations which produced the data. Thus the mathematical operations of adding, multiplying, or raising to a power are matchable respectively with the social operations of people acting individually in a plurel, or interacting in a group, or role-acting in an organization.¹

* Paper read at the annual meeting of the American Sociological Society at Chicago, September 8, 1951.

¹ For further discussion of these social interpretations of the mathematical operations see our dimensional analysis developed in *Dimensions of*

A more familiar example of this matching may be the normal distribution curve or model. It can be generated mathematically by many, small, independent binary variables operated on in certain ways (as described further on). It can be generated socially by many, small, independent, all-or-none influences operating in a population (as described below). This matching enables the sociologist, whenever he observes a normal distribution, to treat it *as if* produced by such chance-like elements. It also enables him, whenever he knows that many small independent influences are at work alone, to expect or predict a normal distribution of their result.

This matching of social and mathematical conditions and operations means developing hypotheses which are rational as well as empirical. Such hypotheses have good reasons to support them and do not depend only on fitting the empirical data. The well matched model that specifies the hypothesis corresponds to the phenomena. It thus lets the sociologist expect that the social phenomena and the model describing them in generalized algebraic symbols will behave alike. As he manipulates the mathematics, people's behavior is correspondingly described. This high degree of correspondence in model analysis between phenomena and formula which characterizes the exact sciences should help make sociology more of an exact science.

To match model and data will often require new categories for observing the phenomena—new variables into which the social situation is to be analyzed. The mathematical variables, their assumptions and combining operations, may guide the sociologist often to look for unfamiliar but matching social variables, assumptions and operations. One such kind of new variable is the binary element, or all-or-none construct, which yields both mathematical and social structures as suggested in the next sections.²

Society, Macmillan, 1942, Ch. 7; *Systematic Social Science*, University Bookstore, Seattle, 1947, Ch. 4; and in various papers such as "A System of Operationally Defined Concepts for Sociology," *American Sociological Review*, IV (October 1939).

² It is interesting to note parallels in the history of science. The chemist gained great power over substances when he shifted from familiar sensory categories of analysis like their color, smell and taste and developed formula models based on atomic

USES OF BINARY ELEMENTS

Among the many models available for social scientists, models built up from all-or-none, or binary, elements are of outstanding importance. These models use binary elements in many different forms under various names. A binary element may be called an all-or-none variable, an attribute (in statistics), a dichotomous construct, or just the numbers, 1 or 0. The binary, whether in formal models or as a habit of talking and so of thinking, occurs in many ways and degrees as the suggestive list below may indicate.

In language, any word, phrase, or sentence, *when coupled with its denial*, as "this-or-not-this," can form a binary. It becomes developed formally as a binary element—a frequency variable—whenever its occurrences as asserted or denied are counted in some specified universe such as the words in the *Encyclopedia Britannica*. Logic formalizes binary concepts such as "a class or its complement," "the universal class or the null class" (often symbolized by 1 or 0), "a proposition or its denial," "truth or falsity." Mathematics develops binary numbers using the powers of 2 with binary coefficients as a complete substitute, available when wanted, for our decimal digit system of numbers. The electronic computing machines use this binary system embodying the 1 or 0 in a vacuum tube going on or off—which it can do more than a million times a second and can also "remember" this action in a mercury ripple. Since a binary element (1, 0) is an independent random variable, its mean happens to be the proportion, p . This proportion, when viewed in the future tense, is the kind of probability on which statistical probability theory is built. The binomial distributions, whether Bernoulli, Poisson or Lexis, all can be built up from binary elements. The normal probability curve and the Gram-Charlier series of distribution curves can be derived, in turn, from these binomial distributions.

In statistics, binary errors which may be

variables with integral valences. These variables combine in physical mixture (when added together in the formulas) or else in chemical unions (when multiplied together in the formulas). Sociologists may similarly gain power over some social phenomena by models which, by fitting choice of symbols, *manufacture* regularity as well as *discover* it (to use Eddington's phrases).

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present or absent (or positive-or-negative) give rise to error theory and sampling theory. Yule and others have developed the statistics of binary elements under the name of attributes. A recent advance develops a factor analysis for binary elements called by Lazarsfeld "latent attribute" analysis.

But perhaps the most far-reaching use of binary elements is the hole-or-no-hole in one row and column of the IBM punch card. To the extent that all kinds of statistical data are coded onto IBM cards, they are converted into binary elements for the electric fingers to count. Whenever variances and correlations can be resolved into combinations of binary elements, the fields of variance analysis, correlation analysis, and factor analysis seem to that extent to be expressible in terms of binaries. We believe that a competent mathematician could re-express most frequency curves (that have a derivative) as a function of binary elements, if he wished to do so.

In psychology, the all-or-none discharge of every neurone is a basic law. From such binary neural action, Rashevsky³ and others have built models or mathematical formulas, whose curves fit closely to some learning data and some other human behavior. Years ago Garnett,⁴ by using binary elements, formally proved that Spearman's general factor theory of intelligence was re-expressible as Thomson's group factor theory. This famous controversy in psychology was resolved by the help of binary elements showing that (whenever the intercorrelations are "hierarchical" or of "rank one") the two theories are simply differing analyses or languages for the same phenomena. Kuder and Richardson⁵ harmonized various formulas for reliability by reducing them to structures of binary elements. Winthrop⁶ has developed mathemati-

cal models for a wide range of diffusion phenomena, some of which involve binary elements as defined below. Mosteller recently presented to a conference of the American Statistical Association a binary model for Thurstone scales and for factor analysis (unpublished). Thurstone, in his *Vectors of Mind* (University of Chicago Press, 1935, pp. 205-12), describes in exact detail the theory of psychological binary elements under the name of "unitary factors." In the field of psycho-physics the just-perceptible-differences which a respondent senses or doesn't sense, and all his judgments of "same-or-different," are binary responses. From these, the Fechner law was induced, relating an increment in sensation to the logarithm of its stimulus. The literature of variance and covariance analysis and of factor analysis would, we believe, show many more uses of binary elements in models.

In sociology there has been less use to date of mathematical models, whether built of binary elements or not. One sociological example of binary models, however, has been Hornell Hart's fitting of logistic curves to cultural data showing surges of growth. He has shown close and good fits for a wide variety of national processes, including patenting, battleship building, lynching, changing life expectation, and others. He has interpreted these in probability terms which—whether one is aware of it or not—are arithmetic means of binary elements.

Dimensional analysis,⁷ which social physicists are developing, offers models of high generality (but low specificity). Our dimensional S-notation,⁸ especially the use of the zero exponent, develops binary thinking formally as a tool for use in sociology. Thus X^0 symbolizes any quality, or kind of entity, and names by its subscripts any word or sentence or paragraph or picture or other qualitative symbol for any phenomenon whatever. In the logician's sense, one example of it is the universal class of which all other

³ Rashevsky, N., "Mathematical Biology of Social Behavior: IV. Imitation Effects as a Function of Distance," *Bulletin of Mathematics and Biophysics*, 12 (1951).

⁴ Garnett, J. C. Maxwell, "The Single General Factor in Dissimilar Mental Measurements," *British Journal of Psychology*, X, Parts 2 and 3 (March 1920).

⁵ Kuder, G. F., and Richardson, M. W., "The Theory of the Estimation of Test Reliability," *Psychometrika*, 2 (Sept. 1937), pp. 151-160.

⁶ Winthrop, Henry, "A Kinetic Theory of Socio-Psychological Diffusion," *Journal of Social Psychology*, 1945, Vol. 22, pp. 21-60.

⁷ Stewart, John Q., "Demographic Gravitation: Evidence and Application," *Sociometry*, XI (Feb.-May, 1948), and Dodd, S. C., "Dimensional Analysis in Social Physics," presented to Sections K and M, Social Scientists and Engineers of the AAAS, Cleveland, December 1950.

⁸ Dodd, S. C., *Dimensions of Society*, Macmillan, 1942, 944 pages, and *Systematic Social Science*, University Book Store, Seattle, 1947, 787 pages.

classes are members. By simply taking-it-together-with-its-absence, the quality X^0 becomes a primitive all-or-none quantity. It becomes a binary element 1,0 (written as 1_0X in S-notation). From this binary form, further quantitative refining may go on to distinguish degrees such as "some, more, most" and make it an ordinal variable (X in the standardized S-notation). Still further refining develops a cardinal variable of equal interchangeable units (${}_X X$ in S-notation). The degrees of precision in observing the amount of anything thus progress through the binary, or all-or-none, level on to the ordinal and cardinal levels (as distinguished by prescripts in S-notation). All this spells out the fact that any qualitative phenomenon can be quantified at least as a binary element. This quantifying is a response of a person to the phenomena, not necessarily some intrinsic property in the phenomena. Quantifying and measuring, like all observing, is an act of a person, an act which, in simplest binary form, consists in observing anything-together-with-its-absence and noting in a given situation which member of

the pair, 1 or 0, should therefore be recorded. With this binary mode of response, the sociologist can always go beyond the necessary initial qualitative treatment of social phenomena and develop quantitative treatment. In short, binary elements offer thus a primitive but widely applicable model which we see as a useful step in handling suitable types of social data more exactly.

SOME SOCIAL CONDITIONS IN BINARY MODELS

In exploring the possible matching of social and mathematical conditions, the larger the researcher's knowledge of both, the more likely he is to find a good match. This knowledge can be increased by the usual study of social phenomena and also by explicit listing of social conditions in terms matched to particular models such as each type of distribution curve, each type of correlation pattern, each type of procedural rule, etc. As examples, we list below some of the social conditions for five models, namely the binomial, normal, logistic, harmonic, and inter-actance distributions.

EXAMPLES OF MATCHED CONDITIONS

Social Conditions	Mathematical Conditions
<i>Definitions and Assumptions:</i>	
In a set of people and a set of time periods a set of variables is studied and analyzed into elemental variables.	P =the number of people T =the number of time periods or overall duration
The binary element is an all-or-none, independent frequency variable or construct. Its mean is a simple probability. If symmetric, its mean is 1/2 and it is as often present as absent.	n =the number of e elements $e=1, 0$ =a binary element e_i =the value of e in the i 'th person $i=1, 2, 3 \dots, P$
The "pro-con" type of element either facilitates or inhibits but is never neutral (except when two elements cancel each other, as $+1-1=0$).	$i=P$ $\sum_{i=1}^P e_i/P=p$ =a probability $i=1$ e_{ij} =the j 'th element in the i 'th person $j=n$ $X_1=\sum_{j=1}^n e_{ij}/n$ =a frequency variable defined as a sum of e 's
	$r_{e_1, e_k}=0$, the elements are uncorrelated p =the mean ($=.5$ in symmetric elements) $\sigma_e^2=1/4$ in symmetric case
	For "pro-con" elements, $e'=\pm 1, -1$ Mean (and all odd moments) $=0$, if symmetric Variance (and all even moments) $=+1$, if symmetric

EXAMPLES OF MATCHED CONDITIONS—Continued

Mathematical Conditions	Social Conditions
A. Binomial Distributions:	
Small, independent, all-or-none influences operating on a large number of persons generate a binomial distribution.	$(p+q)^n$ = the binomial distribution (when expanded) range = n (=number of elements) mean = np ($=n/2$ in symmetric case) variance = npq ($=n/4$ in symmetric case) If $p=1/2$, Bernoulli binomial (symmetric) If p limit 0, n limit ∞ , Poisson binomial (asymmetric)
B. Normal Distributions:	
As the influences become numerous (e.g., over 10 or 20 in practice) the distribution approaches normality.	If n limit ∞ , $p=1/2$, normal curve (continuous) $y = .3989/2.718^{2/2}$, $z = x/\sigma$, area = 1 = normal probability curve
C. Logistic S-shaped Growth Curve:	
An attribute, or any all-or-none behavior, spreads through a population during a period under a condition of homogeneity defined as equal opportunity for anyone to interact with anyone in respect to the attribute. The attribute spreads slowly at first, then faster, then slows down when only a few people remain without it.	$dp/dt = kpq$ or its integrated form $p_t = \frac{p_0}{p_0 + q_0 e^{-kt}}$ $k/4 = \tan$ at mid-point or general slope $p+q=1$ p_0 = initial % $e = 2.718$ p_t = proportion of population at time t
D. Harmonic or Hyperbolic Spatial Diffusion:	
An all-or-none variable (such as a culture trait, rumor, habit, etc.) diffuses from person to person in an area and period, starting from one spot and date, when the diffusers (1) act on neighbors, (2) equally often, (3) and are evenly spread over the area.	$1/1, 1/2, 1/3, 1/4, \dots, 1/n$ = harmonic series $P = k/L$ P = population L = distance k = largest P (i.e., at $L=1$), continuous form "Size-rank rule" $P = k/L^2$, is the generalized hyperbola Area = $\log_e n$, n = largest distance here $2\pi L/\pi L^2 = 2/L$ = circumference/area of circle
E. Interactance between Groups:	
Many persons, in n groups, interact with each other in some respect (such as telephoning).	$I_{re} = kp_r p_c / L$ = expected number of acts per period τ defining the "interactance rate" k = a constant for each kind of interaction ($= 1/P$ in part) p_r = proportion in row group L = distance between p_c = proportion in column group $p_{re} = p_r p_c$ = law of joint probability C = coefficient of contingency $= 0$, if "expected" = "observed" $= \sqrt{X^2 / (X^2 + N)}$ $X^2 = \sum (p'_{re} - p_r p_c)^2 / p_r p_c$ where p'_{re} = the observed joint proportion

The reader of the table shown above⁹ may need fuller description of the models to understand their conditions fully. This paper

is not designed to study these particular models, as that has been done elsewhere.¹⁰

⁹ To keep this paper within bounds, only the binomial, normal and logistic curves will be discussed hereafter.

¹⁰ Dodd, S. C., "The Interactance Hypothesis—a gravity model fitting physical masses and human groups," *American Sociological Review*, April 1950, and "A Measured Wave of Interracial Tension," *Social Forces*, Vol. 29, No. 3, March 1951.

The table is intended rather to illustrate the following point in the use of models (whether built up from binary elements or otherwise): *The social conditions the researcher observes, and the categories by which he selects and classifies the phenomena to be observed, affect, and are affected by, the models he chooses.* Thus, some of the models above stress the social conditions of *homogeneity* of the population or its behavior in certain respects. They make the researcher try to measure or try to control experimentally those factors of homogeneity. Without this model he might concentrate on other factors in the situation. Other factors might be fruitful, but they would be more so, we believe, if he studied them with the help of further models (after exploring enough to choose the appropriate models). For with suitable models the research is more likely to yield generalizations approaching scientific laws for sociology. This statement is somewhat tautological for the model is itself the system of generalizations, the hypothesis, or set of them, that is being tested.

Let us illustrate this directive function of models in social research by examining just how the social and mathematical conditions of the logistic growth curve match each other. Just what is meant when it was said in the table above that an attribute spreads through a homogeneous population in "most probable" increments?

To exhibit how the logistic curve is a probability model, arrange the persons of the population in a matrix with the persons, 1, 2, 3, . . . P, heading each row and column as in the following matrix diagram.

The rows and columns represent persons,

P in number. The cells record their interacts in pairs, ($P^2 - P$) in number, for one kind of interacting (so $n=1$).

Suppose the attribute or binary element, e , that is spreading, is knowledge of a rumor or of some message. Each cell has a value of 1 or 0, according as the row person has or has not told the rumor to the column person. At any moment (t) there is a proportion, p , of the members in the population (shown as one section of the matrix) who know the rumor and a complementary proportion, q , who do not know it. (Note that p is here a variable and not always $1/2$). Suppose the group is homogeneous, meaning that everyone has *equal opportunity* to interact with anyone and tell the rumor if he knows it. This means absence of differential geographic, physical, psychological or social barriers to communicating. The model, by assuming equal probability of interacting by everyone, instructs the researcher to look for barriers or differentials and to try to control them in order to test the hypothesis cleanly.

Now the amount of *interacting* of people can be mathematically represented by multiplying. If everyone interacts with equal opportunity the most probable result is given by multiplying all the alternative probabilities by each other. The knowers and non-knowers are the two alternatives, or values of the binary element here, and their two relative frequencies or probabilities are p and q . Multiplying $p+q$ by itself gives four proportions shown by four sections of the matrix above and by the algebraic expressions:

$$\begin{array}{r} p+q \\ p+q \\ \hline p^2+2pq+q^2 \end{array}$$

AN INTERACTION MATRIX OR PRODUCT OF ACTS OF PERSONS IN PAIRS

		Hearers				
		1	2	- -	P	
Tellers	1	-	1	-	1	} p=proportion of knowers where each cell entry, e, is 1
		p^2		pq		
	2	1	-	-	1	} q=proportion of non-knowers where each cell entry, e, is 0
		qp		q^2		
	P	0	0	-	-	
		p		q		$1.0=p+q$

The p^2 proportion represents, in a given period, knowers talking with other knowers, without spreading the rumor. The q^2 proportion represents non-knowers talking to non-knowers—again without spreading the rumor. But the two pq proportions represent knowers and non-knowers talking together, and here is where the rumor spreads. *The pq proportion then is the most probable increment of knowers in an appropriate unit period.* The cumulation of these pq increments in the successive periods is the logistic curve. In histogram form, starting with 1 percent of the population as knowers, just ten unit periods are needed for the diffusion to exceed 99 percent of the people.

Without the logistic model, the researcher would simply graph the daily spread of the rumor in the population and describe it in a cumulative histogram. Ordinarily he would be content in reporting the distribution's moments, i.e., how many people heard the rumor finally (zeroth moment)?; in what total period?; how fast did it spread on the average (first moment)?; and, perhaps, how much did that speed vary (second moment)? But much more than this must become known if the course of the next rumor in another population is to be predicted—as a good theory of rumor should enable the scientist to do.

With the logistic model, the researcher can go further and predict the form of the growth curve and the amounts of growth insofar as the prescribed social conditions hold—which he can increasingly find out in pretests. He can pretest the homogeneity of the population in the prescribed respects. He can pretest often on a subsample to estimate the average number of persons told by one teller and the average hearing-to-telling time. These two rates of acts-per-actor and acts-per-period would give the exact parameters of the curve and permit numerical prediction of the diffusion. Whenever the prescribed social conditions do not hold fully, the model establishes a base line from which deviations can often be measured. Then the effect of the social conditions, singly and in combinations, can be measured progressively with further research.

SOME MATHEMATICAL CONDITIONS IN BINARY MODELS

For sociologists unacquainted with the mathematics of binary elements a note on

definitions and assumptions and their outstanding properties and functions may be helpful. The following review is drawn from many different statistical texts along with unpublished material.

A binary element is an independent frequency variable, varying over only two values, 1 or 0. Being a frequency variable means that it is more than a pure mathematical symbol; it represents an item whose frequency of occurrence in some defined field is observable. Being independent means that it is not a function of some other variable, but is taken as the ultimate or basic variable in a given model. The model is some function of the binary elements; it is dependent on the binary elements as the independent variables.

For simplicity, three assumptions, or properties, of these elements may be taken, namely:

(The elements will be symbolized by the letter e , hereafter, and X will mean any observed frequency variable which may be a sum or other function of e 's.)

1. They are dichotomous. $e=1, 0$ Multivalued elements might be used but two-valued elements are simplest. Assigning 0 and 1 to the two values also makes for simplicity.
2. They are symmetric. The 1 and the 0 occur with equal frequency. In a sample of P observations, the mean which is also the proportion of 1's, will

$$\text{approximate the midpoint. } M_e = \sum_{i=1}^{I=P} e_i / P = .5 \quad (=p)$$

here) so q , defined by $p+q=1$, the proportion of 0's is also .5, in the parent population and approximately so in a sample depending on its standard error.

Asymmetric elements (i.e., with $p \neq .5$) might be used, but assuming symmetry builds simpler models. For some skewed models, such as a Poisson binomial, asymmetric elements are needed. In the logistic, a proportion growing with time, p_t , is dealt with so p is not $1/2$ there except at the midpoint and mid-date.

3. They are independent random variables, $r_{e_1 e_2} = 0$

Any amount of correlation between elements might be assumed but zero correlation is preferred because it greatly simplifies the models.

From the above properties of a symmetric binary element, its standard deviation is $1/2$; its variance or second moment is $1/4$; ¹¹ and

$$^{11} \sigma_e^2 = \sum_{i=1}^P (e_i - M_e)^2 / P = \sum_{i=1}^P (\pm .5)^2 / P = .25$$

its skewness or third moment is zero; and its kurtosis or fourth moment about the mean is $1/16$.

For some purposes a "pro-con" element may be preferred to the above all-or-none type of element. The pro-con element (e') is assigned the numerical values of -1 or $+1$, instead of 0 or 1. Then the symmetric pro-con element has a mean of zero, a standard deviation of unity and a variance of unity. Its deviation from the mean is the same as its raw score, i.e., -1 or $+1$.¹² With pro-con elements, models which inhibit or negate

variables will be used. The three dimensions which will be used here are *people*, *elements*, and *time*. We shall use:

People, P in number, arrayed with each person as head of a row in the basic 2-matrix (of order $P \times n$).

Elements, n in number, arrayed with each element as head of a column in the basic 2-matrix of elements-vs.-people (of order $P \times n$).

Time, unit periods T in number, arrayed with each period as a "sheet" in the basic 3-matrix (of order $P \times n \times T$) (see below).

THE BASIC MATRIX OF PERSONS VS. ELEMENTS
Elements, the n axis

		1	2	3	—	j	—	n	Row sums, X
Persons, the P axis	1	e_{11}	e_{12}	e_{13}		e_{1j}		e_{1n}	$\sum_{j=1}^n e_{1j} = X_1$
	2	e_{21}	e_{22}	e_{23}		e_{2j}		e_{2n}	$\sum_{j=1}^n e_{2j} = X_2$
	3								
	4								
	—								
	i	e_{i1}	e_{i2}	e_{i3}		e_{ij}		e_{in}	$\sum_{j=1}^n e_{ij} = X_i$
	P	e_{P1}	e_{P2}	e_{P3}		e_{Pj}		e_{Pn}	
Averages		$\sum_{i=1}^P e_{i1}/P$	p_2	p_3		$\sum_{i=1}^P e_{ij}/P$		p_n	$\sum_{i=1}^P \sum_{j=1}^n e_{ij}/P = \bar{X}$
		$= p_1$				$= p_j$			

the positive-or-absent action of all-or-none elements can be built. This enlarges the researcher's ability to find or build models which match a wider variety of social phenomena.

In developing models built up from e elements, three dimensions or basic kinds of

When this 2-matrix (with an axis for the persons and an axis for the elements) is repeated for each of the successive periods, T in number, a 3-matrix with axes for persons, elements and time results. This arrays all the basic data needed here for building up our models of social situations composed of complex, dynamic human variables. Any particular model may be specified (within the limits set by the definitions of the people, elements, and time) by the selection and operations on elements in this basic 3-matrix. Thus we may select just one element (such

¹² All its odd moments are zero and all its even moments are unity: $M_e = \sum_{i=1}^P e'_i / P = \sum_{i=1}^P (\pm 1) / P = 0$;

$\sigma_e^2 = \sum_{i=1}^P e'^2 / P = \sum_{i=1}^P (1) / P = 1.0$.

as "knowing the rumor") and multiply the people by themselves.¹³ We may then add up the products for the T successive periods of interacting—and thus build up the logistic model for the growth of the rumor. Alternatively, by selecting n elements and just one time period and then multiplying the people by themselves (i.e., letting them interact very thoroughly) we can build up the binomial distribution as a model. This might fit a somewhat normal distribution of the number of different rumors known to the people at one moment. Thus by selecting and operating on the elements in the 3-matrix of elements, people, and time a great variety of models can be built up to try to match with observed social data.

Let us turn next to three models which are distribution curves of frequent occurrence. These are the normal probability curve and its allied binomial distributions and the logistic curve. Let us note briefly some of their mathematical conditions which will then be shown to match certain social conditions.

Consider the mean, p , of a binary element, e , in a population of P persons, as a proportion of values of 1 if viewed in the past tense or as a probability of values of 1 if viewed in the future tense. In the case of the symmetric binomial, p is .5, but it may vary in the other curves.

This probability may be compounded either by multiplication or by addition. Multiplying states the law of joint probability; adding states the law of alternative probability. In folk terms, the joint probability is the number of chances in a hundred that two elements, such as pennies, j and k here, will come up both 1's (i.e., heads) in a very large number, P , of trials. Similarly, the alternative probability is the number of chances in a hundred that either one or other of the two values of the element will come up, i.e., a head (1) or a tail (0). The three probability equations restate the above in algebraic language, thus:

¹³ In algebraic terms this product is: $e_{11} e_{11}$ or $(e_{11})^2$ where $i=1, 2, 3, \dots, P$; while in social terms this product is all the possible interacts of the persons in pairs. Each interact is retelling the rumor, if e_{11} is the attribute of "knowing-or-not-knowing the rumor."

$$p_{11} = \sum_{i=1}^P e_{11} / P \quad (= .5, \text{ a simple probability in the case of one symmetric element, } j)$$

$$p_{jk} = p_j p_k \quad (= .25, \text{ a joint probability in the case of two symmetric elements, } j, k)$$

$$p_{j+k} = p_j + p_k \quad (= 1.0, \text{ an alternative probability in the case of two symmetric elements, } j, k)$$

Next, let us compound the alternative and the joint probabilities in the binomial expansion, using n binary elements (such as n pennies tossed P times, if one likes a concrete example).

The binomial is:

$$(p+q)^n$$

When expanded or multiplied out the binomial distribution may be called a binomial model. $p+q$ is the sum of two probabilities (which are complementary; so $p+q=1$ and $(p+q)^n=1$). As n gets very large, the symmetric binomial expansion or distribution histogram approaches as a limit the smooth normal distribution curve defined by

$y = .3989 / 2.718^{.5z^2}$. Here y is the ordinate and z is the abscissa in σ units, and the area is unity. The mathematical "mechanism" for it then is *first to add* two means of binary elements ($p+q$), *then multiply* the sum by itself n times $(p+q)^n$. This sequence of operations will be seen below to lead to important consequences in treating social phenomena.

Next, by reversing the sequence of these two operations, let us generate the logistic growth curve from binary elements. The logistic growth ogive is an S-shaped curve definable by:

$$p_t = \frac{p_0}{p_0 + q_0 e^{-kt}} \quad \text{a logistic model}$$

where p_t = the proportion of a population who have acquired an attribute up to the moment t since the start at t_0 ,

p_0 = the proportion who had the attribute at the start at time t_0 , $q_0 = 1 - p_0$

$e = 2.718$, the Napierian base of logarithms,

k = a parameter fixing the average growth rate or general slope of the curve. It is steep if many people acquire the attribute per unit time, or gradual if few people acquire it per unit time. A large k means fast growth, a small k means slow growth. $k/4$ is the tangent at the midpoint which is also the point of in-

flection in the logistic when in ogive form. It is also the modal ordinate in the logistic distribution curve.

Now this logistic is the integral (or more exactly the solution) of a differential equation and may be written in the form:

$$p_t = k \int pq \, dt$$

This says that in each successive unit of time (dt) the curve grows by adding (\int) an amount, pq (times a constant, k). The solution of this integral equation yields the cumulative ogive of this distribution. Essentially then, this logistic curve arises by *first multiplying* two (changing) probabilities, p, q , and *then adding* these products up for, say, T periods.

The essential operations for generating a normal or a logistic distribution from means of binary elements may be tabled thus:

Sequence of operations on mean
binary elements, p, q :

First operation Second operation

ADD
 $p+q$

MULTIPLY
 n factors

MULTIPLY
 pq

ADD
 T addends

Depending on the degree of approximation allowed, either the smooth curve or the histogram form may be used. Thus rough data may fit the normal and a binomial curve about equally well (or badly). For exact work, however, the normal and binomial distribution should not be referred to as almost synonymous. The binomial is the exact product of sums of means of n binary elements and tends to the normal only as n becomes infinite. (But an n of a dozen or two dozen elements may be indistinguishable in practice when overlaid with sampling and observation errors.)

In comparing the logistic and normal curves, the normal ogive can be more closely compared to the logistic, as both curves are then in cumulative form. Another point is that when growth is being observed, time is the abscissa. This means the normal, or best

fitting, binomial curve is distributed in time. The successive class-intervals of the binomial here correspond to the numbers of binary elements from 0 to n having a value of 1 in a person's score and also correspond to the n successive periods. A major difference besides the sequence of operations is that the logistic is a function of one binary element while the binomial is the function of n binary elements. Both involve a population of persons, P in number, and a period divisible into T class-intervals.

The dimensions of the basic 4-matrix that are used in the binomial ogive (in time) are $P \times P \times T \times n$. This means that many persons (P), each having many elements (n), interact ($P \times P$) thoroughly in successive periods (T). The dimensions used in the logistic are $P \times P \times T$ meaning that many

Resulting model—

a histogram approximating
the smooth curve below:

Normal distribution
approximated by
 $(p+q)^n$

Logistic (cumulative)
distribution approximated by

$$\sum_{i=1}^T pq$$

people, each having only one element, interact in T successive periods.

MANUFACTURING SOCIALLY DESIRED DISTRIBUTIONS

The twin functions of science—to learn how to predict and to control phenomena—are developed in part by the two forms of operational definitions. "Predicting" is the future tense of the *identifying form* of operational definition. This prescribes the operations, materials, and relations used to identify a phenomenon as being a member of some class. Thus curve fitting technics may identify some diffusion data either as a case of logistic growth or as not such a case. "Controlling" is the future tense of the *generating form* of operational definition. This prescribes the operations, materials and relations used to generate or produce a phenome-

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non. Thus setting up conditions of effectively equal opportunity (which might include equal motivation) for communicating, would tend to make a growing binary element (such as knowing-or-not-knowing-a-rumor) grow in the form of a logistic curve.

This suggests a speculation on using models to generate or rearrange phenomena so as to fit some socially desired model. Suppose that a country wishes to get a more normal distribution of income instead of the positively skewed distribution found in most countries. How could incomes be made to become more normally distributed? Immediately the binary model suggests looking for many diverse steps and not expecting a single panacea to normalize the distribution. List a score or two of steps economists believe would make for a more symmetrical distribution. Try each out in models, perhaps like the game of Monopoly,¹⁴ to appraise each step alone, then together in sets.

Suppose again that a fully equalitarian situation were desired in some community or organization. Let equalitarian mean *equal opportunity* for growth, for acquisition, for wielding power, for free communicating, or for gaining in any one attribute or particular binary element, e_1 . Suppose that such equal opportunity could be socially arranged. Then the logistic growth curve should result, and could test in part the degree to which such a condition had been achieved, or may have been prevented, by overlaying conditions.

Suppose it were desired to change phenomena from one form of distribution to another; from one formula to another, as in converting a normal ogive to the similar-looking logistic growth curve. Then knowledge of the binary elements mechanism that can generate each might be useful. The normal curve may arise by first adding and then

multiplying means of binary elements while the logistic curve may arise by reversing this sequence. Can the matching social conditions be so regulated as to achieve this? Can an experiment test such converting of a social structure—perhaps in a Boy Scout camp where points won by campers have been normally distributed in past seasons? Can the camp rules for winning points be changed in a new season from joint requirements to alternative requirements for the points, according as the model calls for change from multiplying binary elements to adding them? Wherever the model calls for the converse change, can the camp rules change alternative requirements for points (which represent a logical sum or additive type of operating) to joint requirements (which represent a logical product or multiplicative type of operating)?

Questions such as these suggest that research in model analysis may increase the sociologist's ability to predict social phenomena in law-conforming or model-matching ways. This is one example of the creative use of our more inclusive dimensional analysis leading to new regularities and going beyond simple description and classification of data.

SUMMARY

For a mathematical model to be used as a rational social hypothesis requires both that the model fit the data closely and reliably and that the mathematical conditions match the social conditions. Thus, in the case of the normal curve and the logistic S-shaped growth curve, the mathematical derivation from all-or-none elements can be matched by suitable combining of present-or-absent social variables. Knowing this structure of binary elements enables the social engineer, for example, to convert normally distributed phenomena into logistically distributed phenomena. This suggests that binary elements may become useful tools for changing some social distributions.

¹⁴ A promising beginning has been made by Shannon (Shannon, Lyle W., "An Experimental Approach to the Development of a Socio-Economic Model," *Social Forces*, Vol. 28, No. 4, May 1950, pp. 410-418) following the author's suggestion.

OCCUPATION AND FERTILITY IN THE UNITED STATES

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THE hypothesis of this study is that each of the nine occupational groups for which the Bureau of the Census gives data on number of children ever born has a distinct level of fertility that is correlated negatively with socio-economic status. It is believed that these occupational groups have different fertility rates because they have different values that find expression in characteristic styles of living. These different values arise out of differences in income, education, interests, class status, and other traits. The more general values that stem from such roots help define the situation regarding such specific values as the desirability of children and the ideal-sized family.¹

An inverse relation between socio-economic status and fertility was found in early investigations of this subject.² Refinements of this original finding have been reported in more recent research. Class or socio-economic fertility differentials have been found to have narrowed;³ to have vanished at the highest levels of economic status;⁴ to be positive at these top levels;⁵ to be positive at all levels among some groups;⁶ to be

positive for families that plan successfully the number and timing of their children, but inverse for other families;⁷ and to be inverse when the universe studied is all urban white women of child-bearing age, but to show some indications of being positive on high levels when the universe is all urban white married women of child-bearing age.⁸

Several explanations have been offered of this apparent change in the type of relationship found in earlier studies. There was, at first, some question about the reality and significance of the new development. Edin and Hutchinson wondered whether it could be attributed to unusual post-war conditions or whether it had always existed, but had been obscured by lack of statistical control over some of the important variables related to fertility; control of which had been achieved in their Stockholm study.⁹ Kiser pointed out in his analysis of the National Health Survey data that the reversal of fertility status in the highest occupational categories might be due to the fact that the business class to-day is different from that of previous years and may now, in fact, constitute our topmost socio-economic class.¹⁰ Notestein more boldly asserted in his analysis of 1930 census data that such results indicated the beginning of a reversal in the

¹ The material for this article has been taken from the writer's unpublished doctoral dissertation, *Regional, Rural-Urban and Occupational Fertility Trends in the United States, 1910 to 1940*, University of North Carolina, Chapel Hill, 1950.

² A general summary of fertility differentials that had been established through empirical research was given in 1938 by Philip Hauser in his unpublished doctoral dissertation, *Differential Fertility, Mortality and Reproduction in Chicago, 1930*, University of Chicago, 1938, pp. 15-17.

³ John W. Innes, *Class Fertility Trends in England and Wales*, Princeton: Princeton University Press, 1938, pp. 122-123.

⁴ Warren Thompson, et al., *Average Number of Children Per Woman in Butler County, Ohio: 1930*, A Census Monograph released in cooperation with the Scripps Foundation for Research in Population Problems, U. S. Bureau of the Census, Washington: Government Printing Office, 1941, p. 9.

⁵ Clyde V. Kiser, *Group Differences in Urban Fertility*, Baltimore: The Williams and Wilkins Company, 1942, pp. 163-164.

⁶ Margaret Hagood, "Changing Fertility Differ-

entials Among Farm-Operator Families in Relation to Economic Size of Farm", *Rural Sociology*, December 1948, V. 13, pp. 363-373 and Karl Edin and Edward Hutchinson, *Studies of Differential Fertility in Sweden*, London: P. S. King and Son, Orchard House, 14 Great Smith Street, Westminster, 1935, p. 57.

⁷ Clyde V. Kiser and P. K. Whelpton, "Social and Psychological Factors Affecting Fertility. Fertility Planning and Fertility Rates by Socio-Economic Status", *The Milbank Quarterly*, April 1949, p. 413.

⁸ Bernard Karpinos and Clyde V. Kiser, "The Differential Fertility and Potential Rates of Growth of Various Income and Educational Classes of Urban Populations in the United States", *The Milbank Quarterly*, October 1939, p. 390.

⁹ Karl Edin and Edward Hutchinson, *op. cit.*, pp. 58 and 66.

¹⁰ Clyde V. Kiser, *op. cit.*, p. 58.

standard association of fertility with economic status.¹¹

The hypothesis of the progressive narrowing of the differential fertility of the several socio-economic classes became generally accepted during the 1940's. The simplest explanation made was that the poorer and less-well educated classes have lagged behind the others in their knowledge and use of modern birth-control methods.¹² Such explanation adds very little to our knowledge of the phenomenon and, in fact, could be considered logically adequate only with the implication that information about methods of contraception has spread more slowly among the lower than among the upper classes, because people of little education either are not close to sources of information or do not have enough money to buy devices that would help them. This implication appears unwarranted, however, from what evidence there is on efforts of birth-control clinics to spread contraceptive methods among the lower classes.¹³

Some refinement of the general hypothesis of lag has been made by Kiser and Whelpton, who have claimed that two factors are involved—the differential prevalence of contraception and a positive correlation of fertility with income and security.¹⁴ Similar viewpoints have been held by other students. It has been maintained, for example, that we are now in a transition stage in which the small-family pattern is spreading to all classes. When this transition becomes virtually complete, we may expect a positive relationship between fertility and socio-economic status.¹⁵ It has been pointed out further that such a positive correlation is

the one that should be expected from the logic of the situation and that it has been obscured temporarily by the spread of culture changes among classes at an unequal rate of speed.¹⁶

This refinement of the hypothesis does not resolve the problem of the nature of the transition or of the cause of the lag among the various classes. Myrdal's explanation is a step forward in this direction. She believes that the small-family pattern has resulted from the change of a traditional to a rational culture. There is some implication in her exposition, furthermore, that rationalism as a personality trait will become eventually characteristic of all classes.¹⁷ The greater attractiveness of this viewpoint lies in the fact that it indicates why the lower classes are only slowly adopting the small-family pattern although methods of contraception have been known by them and available at low cost for some time, and why during the period of transition the factors of education, occupation, and income should be correlated negatively with fertility. The theory is weak in its implication that convergence of the fertility of social classes should be expected, because rationalism will spread eventually in rather uniform degree to all groups or strata of society.

Some attention has been given also in research to the comparative degree of association between fertility and specific indices that have been used to measure status. Although there is not general agreement on this question, the tendency has been to consider occupation as less closely related to fertility than income, rental value of house, or education.^{17a} It is our position, however, that occupation is the best index of class status.¹⁸

¹¹ Frank W. Notestein, "Differential Fertility in the East North Central States", *The Milbank Quarterly*, April 1938, p. 189.

¹² Paul Landis, *Population Problems*, New York: American Book Company, 1948, p. 178 and P. K. Whelpton, *Needed Population Research*, The Science Press Printing Company, Lancaster, 1938, pp. 76-77.

¹³ See Gilbert W. Beebe, *Contraception and Fertility in the Southern Appalachians*, Baltimore: The Williams and Wilkins Company, 1942.

¹⁴ See remarks of Clyde V. Kiser at the Round Table on the Genetic and Social Significance of Differential Fertility at the 1947 Annual Meeting of the Population Association, reported in *Population Index*, July 1947.

¹⁵ Margaret Hagood, *Mothers of the South*, Chapel Hill: University of North Carolina Press, 1939, pp. 372-373.

¹⁶ Rudolph Heberle, "Social Factors in Birth Control", *American Sociological Review*, 6 (December 1941), p. 800.

¹⁷ Alva Myrdal, *Nation and Family*, New York: Harper and Bros., 1941, pp. 62-63.

^{17a} Clyde V. Kiser, *op. cit.*, pp. 167-168; Warren Thompson, *et al.*, *op. cit.*, p. 10; Enid Charles, *The Changing Size of the Family in Canada*, Ottawa: Dominion Bureau of Statistics, Eighth Census of Canada 1941, Census Monograph No. 1, 1948, p. 111; and Karl Edin and Edward Hutchinson, *op. cit.*, p. 57.

¹⁸ In support of this position, see Richard Centers, *The Psychology of Social Classes*, Princeton: Princeton University Press, 1949, p. 15.

Some further light on this problem may be thrown by consideration of research on rural-urban fertility differentials. These differences have been found to be substantial and to have persisted without much change since the first half of the nineteenth century.¹⁹ Recent studies have shown a small increase within the past several decades in this differential, but it has been pointed out that such increase might have been due to changes in the amount, composition, and direction of migration between country and city.²⁰

The persistence of this differential is of particular interest to this study since it is based in large part on occupation. Farming as an occupation, whether by owner-operator, tenant, or laborer, is a much different way of life from that of machine-tending in a factory or white-collar work in an office. It has been maintained in our exposition that these different ways of life, embodying different degrees of acceptance of values that make for lowered fertility, explain fertility differentials found in our society.

The relation between occupation and fertility in the United States will be analyzed in this article, using 1910 and 1940 census data on number of children ever born.²¹ Only native white women²² who were 20 to 69 years of age, who had been married once and who were living with their husbands at the time of the census inquiry are included in our study.²³ The fertility experience of this group will be classified according to age, occupation of husband, and regional location of the family. When the data are classified by occupation of husband some

control of the factor of rural-urban residence is achieved, in that farm owners and operators and farm laborers are separate categories from the urban work groups. A further refinement of the data is found in the fact that occupational fertility rates have been standardized for duration of marriage.²⁴

Data have been given by the Census Bureau for nine occupational groups—namely, professional, proprietor, clerical, service, craft, operative, laborer, farm owner, and farm laborer—that are supposed to vary in socio-economic status from high to low in the order listed. If there is a close relation between status and fertility as indicated in several of the studies mentioned above, these groups should maintain a consistent order in time and space when ranked according to average size of family. Such ranking was carried out for ten age groups within each of four regions for 1910 and 1940.

A consistent rank order was found only for four broad classes of the nine occupational groups—the white-collar combination of professionals, clerks, and proprietors; a second group composed of service and craft workers; a third group of operatives and laborers; and a top fertility group of farm owners and farm laborers. Within each of these four classes, there are irregular variations from region to region and from one age group to another in the relative position of their component occupational groups. These variations may be summarized as follows:

1. Professionals had lower fertility than clerks, in the Northeast region in both 1910

²⁴ Several factors that are important in an analysis of fertility have not been taken into account in the controls of the data that have been described above. One of these significant omissions is religious affiliation. Although Catholic and Protestant fertility rates are believed to differ substantially, census data do not include such a subdivision according to religion. Education and economic status as reflected by rental value of home have also been ignored, although data on these subjects are given in the census volumes. The limitations of our analysis have precluded an extension of the scope of inquiry to include these factors. It should also be pointed out that no attention has been given to the percentage of women employed, although this factor has some bearing on fertility. It is also well to remember that the older women of the census samples are survivors whose fertility experience might not be representative of the whole group of mothers who gave birth to children during the period studied.

¹⁹ Frank Lorimer and Frederick Osborn, *Dynamics of Population*, New York: Macmillan Company, 1934, p. 22.

²⁰ Enid, Charles, *op. cit.*, p. 138 and T. J. Woofter, "Trends in Rural and Urban Fertility Rates", *Rural Sociology*, 13, (March 1948), p. 9.

²¹ The size of the 1910 sample was eight per cent in the North and South and somewhat larger in the West. The 1940 sample was designed by the Census Bureau to include two-and-a-half per cent of the cases of some areas and five per cent of the cases of other areas.

²² Native whites in 1940 formed approximately 81 per cent of the total population of the continental United States.

²³ The 1940 fertility sample indicated about 35 million women from 15 to 74 years of age who were and who had been married. Approximately 18½ million of these women were native whites with unbroken marriages.

and 1940. The reverse of this relative position was found for the Southern region in 1910 and for the Western region in 1940. In other cases, a mixed pattern was found among the several age groups.

2. The relative position of service and craft occupations was also characterized by a good deal of irregularity. In 1910, service workers had lower fertility than skilled workers in the Northcentral, Western, and Southern regions; whereas in 1940 this relationship was noted only for the Northeast and Northcentral states. No consistent order in the rates of these two occupational groups was found among the ten age subdivisions for the Northeast region in 1910 and for the Western and Southern regions in 1940.

in fertility among the four broad occupational classes that maintained consistent relative positions in both 1910 and 1940. For this purpose, the white-collar combination of professionals, clerks, and proprietors will be considered the base group, whose unweighted average fertility will be taken as 100 per cent. The unweighted average fertility of the occupations in each of the other three classes will be expressed as a percentage of the average of the base group.

Comparisons of the fertility of the four classes for 1910 and for 1940 were made within each region according to age of wife, but this subdivision into quinquennial age groups did not yield sufficient additional in-

TABLE 1. FERTILITY DIFFERENCES AMONG SEVERAL OCCUPATIONAL CLASSES WITH RATES EXPRESSED AS A PERCENTAGE OF THE UNWEIGHTED AVERAGE OF THE WHITE-COLLAR COMBINATION OF PROFESSIONALS, CLERKS, AND PROPRIETORS, BY REGION FOR 1910 AND 1940

Region	Occupational Class			
	Professionals Clerks and Proprietors	Service and Craft Workers	Operatives and Laborers	Farm Owners and Farm Laborers
1910				
Northeast	100	126	140	134
Northcentral	100	115	134	143
Western	100	116	137	161
Southern	100	113	128	140
1940				
Northeast	100	121	137	156
Northcentral	100	118	135	159
Western	100	117	136	172
Southern	100	122	151	172

Source: U. S. Bureau of the Census, *Sixteenth Census of the United States. Population: Differential Fertility 1940 and 1910: Fertility by Duration of Marriage*, Washington: Government Printing Office, 1947, pp. 184-193 and 199-208.

3. Operatives almost always had lower rates than laborers. Exceptions to this generalization were found only in the case of the two oldest age groups of the Northcentral region in 1910, and for the age groups 55-59 and 60-64 of the Southern region in 1940.

4. The rural occupational groups, on the other hand, maintained no consistent order in their relative positions. Farm laborers exceeded farm owners in fertility in the Northeastern and Western regions in 1910 and in the Western region in 1940. The reverse of this relative position was found for the Southern states in 1910, and only mixed results were noted among the ten age groups of the Northcentral region in 1910 and of the Northcentral, Northeastern, and Southern regions in 1940.

Our analysis now turns to a more precise determination of the extent of the differences

formation of importance to warrant its retention. Class fertility rates for all ages between 20 and 70 years were then computed by taking the unweighted average of the ten quinquennial rates. These class rates for 1910 and 1940 are presented by region in Table 1.

The data show substantial differences in class fertility with variations running from 13 to 72 per cent higher than the average rate of the base group composed of professionals, clerks, and proprietors. There was a consistent order among the average rates of the four occupational classes in both 1910 and 1940, with service and craft workers having higher fertility than the base group, with operatives and laborers being next in the ascending order of rates, and

with farm owners and farm laborers having the highest rates of all. This order is found among the four regions, with the one exception of the Northeast region in 1910 showing a lower fertility of the rural occupations than of the group including operatives and laborers.

The extent of these class differences varies with region, but, nevertheless, exhibits some degree of uniformity throughout the time span covered by the data. Service and craft workers had rates from 13 to 26 per cent higher than the base group, operatives and laborers had rates from 28 to 51 per cent higher, and farm owners and farm laborers had rates from 43 to 72 per cent higher, excluding the one exceptional case of the Northeast region in 1910.

These occupational differences were very similar in 1910 and in 1940. The one significant change between decades that can be observed is in the increased spread between the fertility of the white-collar urban workers and that of the two rural occupations. In 1940, the rural group differed from the base group from 11 to 32 per cent more than was the case in 1910. This change reflects that fact mentioned before that urban fertility as a whole tended, during the period studied, to decline faster than rural fertility.

All regions had such an increase in the spread between white-collar and rural fertility rates from 1910 to 1940. The only region-specific movement of class fertility appears to be in the case of the Southern region, which showed in 1940 almost twice the difference between the fertility of the base group and that of operatives and laborers as it did in 1910. This increased difference between the two groups is the result of Southern white-collar workers experiencing a faster decline in fertility than other urban groups during the period analyzed.²⁵ There is some probability that this differential movement of class fertility is a part of a sequential change that will lead sometime in the future to a narrowing of the gap between the two classes by a fuller response of the Southern blue-collar urban workers to the forces making for smaller family size.

²⁵ For an analysis of this point, see writer's doctoral dissertation referred to in footnote 1.

CONCLUSION

The data only partially support the general hypothesis of this study that occupation is related to fertility. Individual occupational groups among the total of nine for which there are data do not have distinct fertility rates. Only a very general classification shows the kind of consistent variation between occupation and fertility that indicates a definite relationship. It would seem, in other words, that specific lines of work do not lead to such different modes of living as to influence family size. There are, nevertheless, division points in type of work that do separate distinct styles of living and, therefore, distinct fertility rates. An examination of these division points as revealed by our data should give some indication of the nature of the cleavage.

There is, without much doubt, a substantial distinction among the rural, urban white-collar, and urban factory occupations. This division is relatively easy to understand and accept, because the modes of living of these three categories of workers are seen by common observation to be very different. The rural-urban part of this distinction has been accepted by students of fertility for a long time. The breakdown of urban workers into "white-collar," and "blue-collar" or "overall," groups, has not been as widely used although the distinction has been validated in studies of social class. Our analysis extends whatever use it may have had in fertility investigations and supports it with a more substantial foundation.

The further classification of urban workers into service and skilled on the one hand, and operatives and laborers on the other hand, leads into the middle of a controversy now current about the degree of occupational classification that is desirable. Some students are of the opinion that the old-time distinction between skilled, semi-skilled, and unskilled workers, is disappearing in our factory system because of the high degree of mechanization and because of the merging of many of their interests in a common labor organization. The data of this study indicate that so far as fertility goes there is still reason to distinguish skilled workers from the less skilled. Whether this separation continues to bear fruit in research of the coming decades will be probably a matter of

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the course of urban development—particularly of changes in social stratification.

Whatever breaking points are used to distinguish occupational groups, the data offer some question as to the type of relationship that is involved. Throughout the years of fertility experience covered by the 1910 and 1940 data, the evidence suggests that it is more accurate to label the relation between fertility and socio-economic status as measured by occupation as one of inverse rather than of direct character.

Neither label, however, does full justice to the facts. There was found, for example, considerable irregularity in the relative position of professionals, clerks, and proprietors on the scale of fertility used in this study. It is our belief that such instability of position within a narrow range is evidence that this is a relatively homogeneous group; that is, a group having the same general values and modes of living, and thus the same level of fertility. How, then, can this position be reconciled with the fact that clerks are not usually accorded the same socio-economic

status as professional persons or proprietors?

The solution of this problem may lie in distinguishing between values and status. Clerks in this sense might be classed with other white-collar groups since they tend to imitate their patterns of living. It is possible for clerks to have the same general attitudes and the same general style of living as professionals and proprietors, although unable to express this style of living and its associated attitudes on the same social and economic plane as the people whom they imitate.

Instead of trying to measure status, therefore, and to correlate our indices of it with fertility, we should measure or delineate styles of living and show how their central values lead to the small-family pattern or to a continuation of the larger families typical of past generations. Occupations, when combined in broad classes as in this study, can serve as indices of general styles of living. Occupation to this degree may be said to be correlated with fertility.

ITEM SELECTION IN SCALE ANALYSIS *

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INTRODUCTION

HEURISTIC devices, analytic models, and the like have come to be regarded as indispensable in sociological research. Lately several mathematical models have been developed which have as their principal object the analysis of social attitudes and similar traits.¹ Very generally, an analysis by this method involves a definition of the model and a test to determine how well a sample of data approximates the mathematical ideal. If the discrepancy between the sample data and the model can reasonably be ascribed to chance factors then

the hypothesis is accepted that the data in their entirety have a structure like that exhibited by the model. A well known illustration of this procedure is the fitting of a normal curve to an observed frequency distribution and then testing departure from normality by chi-square.

The method of attitude analysis devised by Louis Guttman belongs in this general category. Scale analysis, as this method is called, consists of (1) a definition of a scale and (2) a procedure to test by means of sample data the hypothesis that the universe of content defining the attitude is a scale. This paper investigates and discusses certain aspects of the sampling problem in scale analysis, particularly the lack of independence between the sample information and the person drawing the sample. Also discussed is the assumption, involved in the method of successive approximations, that

*This paper in somewhat different form was presented at the annual meeting of the American Sociological Society, September 7, 1951.

¹ See the first eleven chapters in S. A. Stouffer (ed.), *Studies in Social Psychology in World War II, Measurement and Prediction*, Princeton: Princeton University Press, 1950.

persons may respond differently but nevertheless have the same attitude.² But first the method of scale analysis as applied to attitude questionnaires is very briefly summarized.

SCALE ANALYSIS SUMMARIZED

An attitude questionnaire is a scale if the items arrange a group of people in such a way that all of their responses can be perfectly reconstructed from the persons' ranks. This necessarily means that there is a unique combination of responses for each rank, hence, a person's response pattern is completely determined by his rank. The determination of how well a set of observed responses satisfy the criteria of a scale as defined is a relatively simple matter, but the inference from sample to the totality of items that define the attitude is much more complex. The suggested working procedure for drawing a sample of items, determining whether the questionnaire is a scale, and making the inference from sample to universe is about as follows: (1) define as precisely as possible the attitude being investigated; (2) select ten or so items which clearly belong to this attitude; (3) give these items to a random sample of about 100 persons; (4) determine how well the totality of these responses can be reproduced from the persons' ranks.³ The percentage of responses correctly reproduced is an index of how far the observations depart from the scale model. Thus a reproducibility coefficient of 90, as this percentage is called, signifies that an average of nine out of ten responses can be correctly reproduced. If no item in the sample has a reproducibility coefficient very much below 90, this is regarded as evidence in support of the hypothesis that the entire area of content from which the sample items were drawn is a scale. The hypothesis is considered more tenable when the pattern of errors is random, and when marginal fre-

quencies are scattered over a wide range. If the hypothesis that scale analysis intends to test is accepted on the basis of sample evidence, then attitude measurement is considered feasible; otherwise measurement is abandoned on the grounds that more than one dimension is involved in the behavior being studied.

In the framework of scale analysis, unidimensionality and scalability are thus seen as equivalent—an attitude being judged unidimensional when the sample responses meet the criteria of a scale. A somewhat different point of view, parenthetically inserted, is that scalability is needed but is not enough to prove that the attitude in question has but one dimension. Conceivably, a large number of items may scale together and yet belong to different content areas. For example, if two Guttman scales are perfectly correlated, then the combined scales will have the properties of a Guttman scale.⁴ This is somewhat analogous to the point made by Sletto⁵ that items may be internally consistent⁶ and yet belong to different areas; hence, internal consistency is not sufficient to demonstrate that a scale is unitary. If an investigator has reason to believe that independent variables are involved in a set of responses that scale together, he may endeavor to prove that the variables are aspects of the same thing or to establish the independence of the variables by means of external evidence. These two solutions, of course, are not necessarily incompatible since variables, independent on one level, may merge into another. For example, separate events such as delinquency and truancy are sometimes viewed as aspects of social organization. A different type of solution is to redefine the universe as items that were

⁴ This point is implicit but undeveloped in Guttman's statement to the effect that "an item may happen to scale with an area, and yet not have the content defining the area—it may be a correlate rather than a part of the definition." Louis Guttman, *Questions and Answers about Scale Analysis*. Research Branch, Information and Education Division, Army Service Forces, Report D-2, 1945.

⁵ R. F. Sletto, "A Critical Study of the Criterion of Internal Consistency in Personality Scale Construction," *American Sociological Review*, 1 (1936), pp. 61-74.

⁶ A questionnaire is internally consistent when item scores are highly correlated with total scores.

² An investigation of concept development in children (K. Schuessler and A. Strauss, "A Study of Concept Learning by Scale Analysis," *American Sociological Review*, 15 (1950), pp. 752-762) led to the writer's interest in these problems. Scale analysis was used in that study to determine whether concepts in children develop in a cumulative fashion.

³ Several equivalent methods are available for making this test. See Stouffer, *op. cit.*, Chapter 4.

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originally thought of as belonging to separate areas. This solution, however, conflicts with a principle of scale analysis to the effect that the definition of the attitude not depend on findings of the scale analysis, i.e., an attitude is to be defined before its scalability is tested.

INVESTIGATOR EFFECT

The foregoing summary and comment intend to emphasize that the scalability of an attitude is an inference based on sample results. One naturally wonders whether the sampling procedure is adequate for purposes of making such an inference. Generally, a sampling of questionnaire items is biased in the sense that it is not independent of the person drawing the sample. This is so unless an operational universe has been assembled. Further, because the usually expressed purpose of attitude measurement is to arrange a group of people in rank order from high to low on a single continuum,⁷ an investigator is likely, perhaps unwittingly, to select a set of items that has the properties of a scale. In other words, the very object of attitude measurement may lead to the neglect of those items which on *a priori* grounds would not differentiate the population into scale types. These considerations suggest that different persons investigating the same nominal attitude are likely to disagree on the question of whether that attitude is scalable.

To obtain some information on this point, the following study was made:

First a topic was selected. The topic "attitude toward Negro" was selected because so much work has been done in this field. Then 35 items, related to this area but constructed by five different investigators, were given to a group of 146 college students. Their responses were grouped according to investigator and analyzed and compared as to scalability. Scalability within sets was determined both on the basis of the original response categories and on the basis of combined categories.⁸ All items, illustrated

just below, were in the form of a statement followed by four alternatives representing differing degrees of agreement, and a fifth alternative to express indecision. The capital letter(s) preceding the following examples identifies the set to which a particular item belongs.

- B. I would have Negroes live outside my neighborhood.
- R. The best solution to the "Negro problem" is to resettle the Negroes in some part of Africa.
- M-L. All Negroes belong in one class and should be treated in about the same way.
- G. Negroes tend to lower the standards of their neighbors.
- K. This is a white man's country and it should be kept that way.

The five sets were arranged into a single questionnaire so that every fifth item was from a particular set; this precaution was taken to control sequence effect, although, obviously, this condition and similar ones can never be fully controlled.

One set consisted of seven items from the Murphy-Likert Negro Scale;⁹ these seven were in the required form. There was reason to expect that these items would form a scale since they had previously been shown to be internally consistent, and items that are internally consistent tend to scale.¹⁰ Another set was taken from the 92 statements that make up Grice's scale constructed to measure attitudes toward defined groups.¹¹ These 92 items were arrayed by their Thurstone scale values,¹² and then every 13th

⁹ Gardner Murphy and Rensis Likert, *Public Opinion and the Individual*, Harpers, 1938, pp. 38-39.

¹⁰ This is because internally consistent item scores must have a high correlation with total scores; hence, internally consistent item responses are certain to be fairly predictable from total scores—the criterion of scalability. In this connection see: Allen L. Edwards and Franklin P. Kilpatrick, "A Technique for the Construction of Attitude Scales," *Journal of Applied Psychology*, 32 (1948), p. 376. Also see by the same authors "Scale Analysis and the Measurement of Social Attitudes," *Psychometrika*, 13 (1948), pp. 112-113.

¹¹ H. H. Grice, "The Construction and Validation of a Generalized Scale Designed to Measure Attitudes Toward Defined Groups" in H. H. Remmers (ed.), *Studies in Attitudes: Purdue University Studies in Higher Education*, XXVI, Lafayette, 1934.

¹² Thurstone scale values are the average judgments of a group of people who individually locate each item on a scale consisting of apparently equal intervals.

⁷ Leon Festinger, "The Treatment of Qualitative Data by Scale Analysis," *Psychological Bulletin*, 44 (1947), p. 149.

⁸ The method of combining categories in order to raise reproducibility—called "the method of successive approximations"—is discussed in a later section.

item was taken until the quota of seven was filled. Taking every 13th item assured good coverage over the entire Thurstone scale, consisting in this case of eleven apparently equal units. The origin in the list was random. The Bogardus Social Distance Scale was the third set of items.¹³ The seven items comprising this scale were originally selected because their Thurstone scale values constituted a series of integers, one through seven; hence these items were equidistant on

bility, they were alike in the sense that each required a rejection of the hypothesis that the attitude is scalable. The Murphy-Likert items had the best mean (first approximation), but none of the items in this set attained 90, the working criterion of scalability; and one item (No. 6) reproduced only slightly more than one half of the total number of responses.

The next step consisted of combining adjacent response categories that seemed to

TABLE 1. REPRODUCIBILITY COEFFICIENTS IN FIVE SETS OF SEVEN ITEMS

Item No.	Likert		Kirkpatrick		Bogardus		Research Group		Grice	
	Original Categories	Dichotomized	Original Categories	Dichotomized	Original Categories	Dichotomized	Original Categories	Dichotomized	Original Categories	Dichotomized
1	76	82	58	90	60	91	71	77	66	94
2	82	86	56	87	66	92	56	88	54	92
3	69	83	47	90	68	92	66	96	70	94
4	69	92	62	96	60	91	54	89	63	98
5	68	86	70	84	70	91	56	86	66	88
6	56	97	64	81	70	92	49	81	57	98
7	80	85	77	98	62	93	57	73	50	77
\bar{X}	71	87	62	89	65	92	58	89	61	92

the average for the judges who sorted them. Professor Clifford Kirkpatrick furnished a set of statements in response to the request, "Would you be willing to construct a set of statements which will, in your opinion, reveal an individual's attitude toward the Negro?" The fifth set was constructed by a sociology research class at Indiana University. Their assignment was merely to construct a set of items which would serve to reveal an individual's attitude toward the Negro. No mention was made of the fact that the items would be used as a test of the hypothesis that the universe to which they belonged was a scale.

Each set of responses was scaled separately, with the result, shown in Table 1, that no set yielded a variable from which the totality of responses could be reconstructed with very little error. Although the five samples differed in average reproduci-

intertwine, and determining how closely a scale was approximated on the basis of these combinations. When this had been accomplished, it was noticed that practically all items had been dichotomized; accordingly, the remaining items were dichotomized so that each item, hence each set, would have its error based on the same number of response categories. Table 1 shows that none of the Bogardus items as dichotomies had reproducibility coefficients below 90, while each one of the remaining sets had at least one item below this level. By the working rule that no item have a reproducibility coefficient very much below 90, only the Bogardus items then would require an acceptance of the hypothesis that the universe of content is a scale; the others would suggest a rejection of this hypothesis. Further, the Bogardus items were more adequate than the rest by the criteria of random errors and a wide range of marginal frequencies: marginals ranged from 57:43 to 90:10; the pattern of error appeared random. This

¹³ E. S. Bogardus, "A Social Distance Scale," *Sociology and Social Research*, 17 (1933), pp. 265-271.

sharpens the difference between the Bogardus items and the others concerning the inference drawn about the universe of content.¹⁴

These findings corroborate the point that investigators may reach contradictory conclusions concerning the scalability of what is at least superficially the same topic. The observed differences in reproducibility among the five sets of items may have been due to the fact that the same term was applied to different content areas or to the fact that

SPECIFIC INVESTIGATOR TENDENCIES

Investigator differences in experience and ingenuity doubtless manifest themselves in a very large number of ways with reference to item selection and construction. To cite an obvious example, questions ostensibly related to the same attitude (sex, religion, race) will most certainly differ in content and emphasis if constructed by persons with different social perspectives. This is virtually

TABLE 2. THIRTY-FIVE ITEMS CROSS CLASSIFIED BY REPRODUCIBILITY AS DICHOTOMIES AND TYPE OF STATEMENT

Reproducibility Coefficient	Type of Statement					
	Negative	Positive	Total	Personal*	Institutional	Total
91-99	6	9	15	12	3	15
82-90	11	2	13	5	8	13
73-81	6	1	7	2	5	7
Total	23	12	35	19	16	35

* Personal includes statements in the first person and statements implying direct personal interaction.

investigators were prone to select different kinds of items from the same area. Both interpretations suggest that the content of whatever universe is being studied must be specified before the test of scalability is made; otherwise it is impossible either to repeat the test or to make a statistical interpretation of the findings. Another point, suggested by this material, is that, in the absence of a definition of content independent of personal intuition, generalizations about a certain attitude (concept, value, opinion) must necessarily be restricted to a particular conceptualization of that attitude. This restriction does not lessen, of course, the value of a unitary scale for certain purposes, but it does limit, as noted, the generality of whatever propositions are made about a given topic and variables thought to be relevant.

¹⁴ It should be emphasized that this difference is based on results obtained after the responses had been dichotomized. That is, acceptance of the hypothesis that this attitude is scalable involves the procedure of putting persons in the same attitude category, even though they responded differently.

a truism. Other subjective traits that may affect questionnaire material and thereby contribute to the variability in scale results include the tendency to require a negative reply in order to show a favorable attitude, and the tendency to put matters on a personal rather than an institutional level. The effect of these particular factors on reproducibility was studied by relating them to reproducibility in the following way: The 35 items were first classified as upper, middle, and lower third, depending on the magnitude of their reproducibility coefficients when scaled as dichotomies. These classes were then compared as to the relative number of negative statements and the relative number having to do with institutional rather than personal matters. Table 2, not fully discussed here, suggests that personal items are more likely than institutional items to yield reproducible responses; 63 per cent of the personal items, in contrast with 19 per cent of the institutional items, had reproducibilities better than 90. This finding, although inconclusive, throws some light on the relative success of the Bogardus items since they were all phrased in the first person

singular. The material in Table 2 also suggests that positive items are more likely than negative to yield reproducible responses; three-fourths of the positive, in contrast with one-fourth of the negative, had reproducibilities better than 90.

The investigation of the point that extraneous factors related to investigator differences affect the results of scale analysis was carried a step farther by giving the 22 items that comprise the Rundquist-Sletto Economic Conservatism Scale¹⁵ in two forms (hereafter referred to as A and B) to approximately 250 college students randomly divided for this purpose. Form A had the alternatives after the statement in the order: Strongly Agree, Agree, Undecided, Disagree, Strongly Disagree, while Form B had them in the order: Strongly Disagree, Strongly Agree, Agree, Disagree, and Undecided. Table 3 shows that order of alternatives had practically no effect on the reproducibility

¹⁵ E. A. Rundquist and R. F. Sletto, *Personality in the Depression*, Minneapolis, The University of Minnesota Press, 1936, p. 26.

TABLE 3. REPRODUCIBILITY COEFFICIENTS AFTER SECOND APPROXIMATION OF TWENTY-TWO ITEMS IN FORMS A AND B, RUNDQUIST-SLETTO ECONOMIC CONSERVATISM SCALE

Item No.	Form A	Form B
1	98	85
2	78	81
3	78	79
4	65	69
5	95	87
6	76	74
7	70	87
8	68	74
9	80	70
10	76	78
11	80	70
12	89	86
13	79	80
14	80	79
15	76	82
16	96	91
17	72	83
18	74	75
19	69	64
20	71	70
21	89	68
22	71	70
\bar{X}	78.6	77.4
$\bar{X}_a - \bar{X}_b = 1.2$		
$t = .73$		
$p > .4$		

of the items considered jointly; neither set would support the hypothesis that these items are drawn from a scalable area of content. The fact that the difference between means is not statistically significant, in addition to the fact that differences between specific items are randomly distributed, suggests that variability in reproducibility associated with differences in order of alternatives is a chance matter.

Another matter of some importance is whether Forms A and B differed widely and erratically on relative marginal frequencies. This is important because scale types are closely related to marginal frequencies. For example suppose that three dichotomized attitude items, *a*, *b*, and *c*, form a perfect scale in such a way that everyone who endorses *a* also endorses *b* and *c*; everyone who endorses *b* endorses *c*, and so on. Evidently *a* gets the smallest number of endorsements, *c* the largest. If the items continue to scale perfectly but marginal frequencies change so that the smallest number now endorse *b*, then the composition of the four scale types will change. Table 4 shows that item marginals on Forms A and B differed in a regular fashion—persons selected the "liberal" alternatives (scored 4 or 5) more often on B

TABLE 4. PER CENT OF RESPONSES IN "LIBERAL" (WEIGHTED 4 OR 5) CATEGORIES FOR FORMS A AND B

Item	A	B	Difference
1	3	9	-6
2	29	28	1
3	55	63	-8
4	49	57	-8
5	6	17	-11
6	48	53	-5
7	59	74	-15
8	28	38	-10
9	23	44	-21
10	24	20	4
11	54	57	-3
12	15	15	0
13	22	24	-2
14	24	32	-8
15	23	31	-8
16	8	14	-6
17	15	27	-12
18	68	65	3
19	23	29	-6
20	43	51	-8
22	15	26	-11
23	50	48	2

than on A. But this constant difference did not result in marked differences in regard to the number, order, and composition of scale types. This is because the items on A and B differentiated the two groups in the same relative way. Table 5 shows a

combining procedure is usually justified on the grounds that persons may respond differently and yet have the same attitude.¹⁷ Limited evidence from several applications of scale analysis had previously suggested that the combining of categories was almost

TABLE 5. NUMBER, PER CENT, AND RANK ORDER OF "LIBERAL" (WEIGHTED 4 OR 5) RESPONSES REPRODUCED FROM SCALE SCORES FOR FORMS A AND B

Item	Form A*			Form B**		
	Predicted		Rank Order	Predicted		Rank Order
	Number	Per Cent		Number	Per Cent	
1	4	3	1	5	4	1
2	24	20	8	39	33	10
3	106	86	22	97	83	21
4	44	36	16	75	64	18
5	12	10	6	21	18	6
6	82	67	20	76	65	19
7	104	85	21	63	54	16
8	26	21	12	35	30	8
9	8	6	3	39	33	10
10	26	21	12	21	18	6
11	82	67	20	51	44	14
12	26	21	12	17	14	4
13	24	20	8	35	30	8
14	30	24	14	17	14	4
15	35	28	15	51	44	14
16	5	4	2	9	8	2
17	12	10	6	15	13	3
18	73	59	17	101	86	22
19	19	15	7	45	38	12
20	26	21	12	82	70	20
21	9	7	4	51	44	14
22	79	64	18	69	59	17

* N=123.

** N=117.

fairly close correspondence between items when ranked according to the number of people falling above the first cutting point¹⁶ (first approximation). One conclusion suggested by this analysis is that while changing the order of alternatives may result in different marginals, the items may nevertheless scale a group of persons in exactly the same way, except that the relative number of persons in each type will differ.

SUCCESSIVE APPROXIMATIONS

It is significant that the Bogardus items supported the hypothesis that the universe of data is a scale only after the responses had been combined and reweighted. This

¹⁶ A cutting point between ranks marks a shift in response.

always necessary in order to raise reproducibility to the criterion level.¹⁸ Therefore, it seemed desirable to investigate the assumption, involved in the method of successive approximations, that people may differ in their responses to a statement but occupy the same position on the attitude continuum. This was done in the following manner.

Seven of thirty-five "attitude toward Negro" items that had large "Undecided" frequencies and nearly equal frequencies in the "Agree" and "Disagree" categories were presented to 86 individuals. On the first

¹⁷ Louis Guttman, "The Cornell Technique for Scale and Intensity Analysis," *Education and Psychological Measurement*, 7 (1947), p. 256.

¹⁸ Schuessler and Strauss, *op. cit.* Also see Strauss and Schuessler, "Concept Development in the Child," *American Sociological Review*, 16 (1951), pp. 514-523.

administration, the statements (hereafter referred to as Form C) were followed by three alternatives: "Agree," "Undecided," and "Disagree." The responses to the items in this form yielded a mean reproducibility coefficient of .72, indicating that these items did not belong to a scalable universe. Categories that seemed to intertwine on the first

object was to determine whether these persons grouped themselves in the same way as they had been grouped in the second approximation.

The results for both forms are shown in Table 6. The first column shows the responses to Form C; the second shows response frequencies after categories had

TABLE 6. MARGINAL FREQUENCIES ON FORMS C AND D

Item No.	Category	Form C		Form D		
		Marginal Frequencies	Marginals After Second Approximation	Marginal Frequencies	Marginals of Agree and Disagree on Form C	Marginals of Undecided on Form C
1	Agree	27	41	36	29	7
	Undecided	14				
	Disagree	45	45	50	43	7
2	Agree	27	27	49	31	18
	Undecided	24				
	Disagree	35	59	37	31	6
3	Agree	52	52	62	55	7
	Undecided	11				
	Disagree	23	34	24	20	4
4	Agree	59	76	70	55	15
	Undecided	17				
	Disagree	10	10	16	14	2
5	Agree	26	43	35	23	12
	Undecided	17				
	Disagree	43	43	51	46	5
6	Agree	42	62	50	40	10
	Undecided	20				
	Disagree	24	24	36	26	10
7	Agree	52	65	62	52	10
	Undecided	13				
	Disagree	21	21	24	21	3

trial were then combined and reweighted and scaled in this form. Mean reproducibility rose to .86, a 19 per cent gain.

The same statements (hereafter referred to as Form D) were then given to the same persons about a day or so later, except that the statements were followed by two alternatives: "Agree" and "Disagree," the category "Undecided" having been eliminated. On Form D the individuals were instructed to choose the alternative that best represented their opinion, but in any case to make a choice. The interest on the second test was altogether in those persons who had answered "Undecided" on the first run. The

been combined. The third column shows responses to Form D, the fourth how persons responding "Agree" or "Disagree" on Form C distributed on Form D, and the fifth shows how the "Undecided" on C divided when forced to choose between "Agree" and "Disagree." An outstanding point is that in only two cases out of seven were the shifts in the direction anticipated by the scale analysis. Also important is the fact that in two instances the shift was the opposite of what had been expected on the basis of the second approximation. For example, on Item 2, the "Undecided" had been combined with those checking "Disagree," but when given a

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choice, most of the "Undecided" answered in the affirmative. For two items the split was about even; on Item 5 the majority went in the direction anticipated by scale analysis, but almost one third went the other way.

It should be pointed out here that some of the "Undecided" would doubtless, for one reason or another, have changed to some other response category had Form C been repeated. In all likelihood some of the "Undecided" responses to Form D were of this nature—instances of response instability. The fact, however, that practically all who chose "Agree" or "Disagree" on Form C made the same choice on D strongly suggests that the "Undecided" choices to Form D were not mainly instances of response instability but rather were reliable judgments. It should also be noted that combinations including "Undecided" might have been used on Form D instead of "Agree" and "Disagree," although their use would have been in some ways more complicated. For example, to achieve the groupings of the second approximation, those checking "Agree" or "Disagree" on C would always have to check "Undecided," and the "Undecided" on C would have to check "Undecided" or the other available category, depending on how categories had been combined in the second approximation. This emphasizes incidentally the difficulty of making an interpretation of the categories of a second approximation.

The findings presented in Table 6 reveal that the classes contrived in a second or later approximation are not necessarily homogeneous with respect to behavior. It follows that the method of successive approximations cannot always be justified on the grounds that persons in adjacent and interlocking categories have the same attitude but differ in their verbal expressions. These findings raise the question as to which outcome or approximation should be used to test the hypothesis that the universe of content is a scale. To prove this hypothesis by a second approximation, when the evidence based on the original categories is negative, appears to be a questionable procedure, particularly since the combined categories may have no empirical references. The fact that reproducibility is improved by devising new categories does not mean that these devised categories

necessarily constitute a better basis for representing the structure of the attitude being studied.

These data also affirm the danger of making a single assumption in regard to how respondents in a certain category will respond when that category is not available as an alternative. With respect to the seven items used in this trial, the undecided voters, when required to choose between "Agree" and "Disagree," split in almost every possible way—evenly, proportionately, and unilaterally. Another difficulty, noted parenthetically, has to do with the meaning assigned to a composite category. For example, when persons answering "Undecided" and "Agree" are combined, should the members of this category be considered as being in a state of indecision about the statement or as in hearty agreement with it? In one case reported in the literature,¹⁹ persons who agreed with the statement, "As a sociological treatise, Adamic's book does not rate very high," were combined in the second approximation with those who disagreed with it. The problem of interpretation is especially perplexing in this case.

SUMMARY AND CONCLUSIONS

1. This paper illustrates the point that sample results are both a function of the way in which the universe is defined by the investigator and the manner in which he chooses items from the field of content that defines the topic. An implication is that conclusions concerning the scalability of a given topic must be restricted to some one's version or conception of that topic, assuming a sampling method free of bias. If sampling is selective, then inferences can hardly be extended to any totality of content, no matter how conceived. Evidently, an objective method of listing content is needed in order to lift the foregoing restriction.

Two procedures suggest themselves. First, construct the universe operationally in terms of a content analysis of some body of material that lends itself to analysis by this technique (newspapers, magazines, etc.). The list of items yielded by this procedure could then be considered as the universe

¹⁹ Guttman, *op. cit.*, p. 256.

of content from which samples of items could be randomly drawn. An important limitation of this method is that the body of material selected for content analysis may not coincide with whatever was originally thought of as defining the topic—attitude, opinion, value, concept. A second possible method is to get a random sample of persons and by means of an appropriate technique obtain from each person a complete verbal expression of the attitude being studied. Such a procedure would enable the researcher to check his notion of what is involved in the attitude against a large number of conceptions obtained from a random sample of people. An important limitation of this method is that interviewees are more or less articulate; there is no assurance that an intensive interview, or another technique, would elicit an exhaustive verbal expression of the attitude. Both procedures, in spite of numerous limitations, seem superior to

any method that fails to require an objective definition of the topic being studied and a mechanical procedure for drawing items.

2. Data from this research suggest that categories contrived in successive approximations for the purpose of raising reproducibility are not necessarily homogeneous with respect to behavior. Rather, it appears that gains in reproducibility are achieved by making categories more heterogeneous, predictions being made to a wider range of behavior. In view of these considerations, there seems to be little *a priori* reason for testing the dimensionality of an attitude area by the results of a second approximation rather than on the basis of the original categories. An investigator may, by combining categories, improve reproducibility, but it does not follow that the devised categories are necessarily composed of homogeneous elements.

RESEARCH RELATED TO SOCIAL CLASS IN ENGLAND *

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CONSIDERABLE interest in social class is shown by recent research in the social sciences in England. This is not a new interest. England has a long history of social surveys, many of which were primarily concerned with the condition of the working class. In this brief paper, the writer can discuss only a few selected contemporary studies which in his opinion are among the most important researches now being carried on in England.

The Nuffield Foundation, in 1946, granted funds to the London School of Economics, to carry on a series of studies in "social selection and differentiation." The object of these researches was to discover the nature of the class structure of the population of England and Wales and to study the movement of individuals within the class structure. Several preliminary studies have been completed.

The report of the Nuffield Research Unit, London School of Economics, for 1950, states that: "Because of the impossibility of defining social class boundaries, the problems of social selection, differentiation and mobility were approached through the selection of criteria influencing them, the objective criteria of occupation and education being chosen for primary study."

If changes in social class were to be studied in terms of changes in occupation, it was necessary first to make a study of the social standing of the various occupations. This initial work was done by John Hall and Caradog Jones.¹ Thirty occupations were chosen which were representative of the occupational distribution of the population at the last census. The memberships of various professional and labor organizations were used as rankers. They were asked to place each occupation in one of seven

* Paper read at the annual meeting of the American Sociological Society held in Chicago, September 5-7, 1951.

¹ John Hall and Caradog Jones, "Social Grading of Occupations," *British Journal of Sociology*, 1 (March, 1950), 31-55.

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empirically derived categories. The rankers were instructed to place the occupation in the class to which they thought people generally assign it, rather than according to their personal opinions.² The authors found a large measure of general agreement in the ranking of occupations, and concluded that any carefully devised occupational grading would show a fairly high degree of correlation with a prestige grading. This was their justification for the use of an occupational grading system as the best approach to the measurement of class mobility.³

Three studies of mobility have been completed. These were based on a random sample, (9000) of the population of England and Wales. The results of these investigations will be published soon. The first was: "An Inquiry into the Educational Backgrounds and Occupational Status of a Sample of the Population over 18 Years of Age. . . ." The purpose of the study was to examine the relationship between parents' status and the educational opportunities of their children; to investigate the influence which parents' occupational status might have had on the child's eventual occupational grade; and the extent to which both were a function of the social class into which the child was born, insofar as this was evidenced by parental occupation. The Hall-Jones occupational scale was used in determining the social status of various occupations. The research was carried on in cooperation with the Social Survey and the Ministry of Labour. It presented a descriptive analysis of the educational experience of the adult population and indicated the relationship between occupational grade (social class) and education, and showed the effects of educational legislation in the past 50 years.

The second investigation in this area was a study of trends in social mobility in occupational terms, comparing the occupational grades of those interviewed in the national sample with that of their fathers. The third investigation studied the influence of education on occupational mobility by comparing the educational backgrounds of those who move above, fall below, or remain in, the

same occupational grade as their fathers. Several complementary statistical measures of mobility were devised.

Additional material collected in the national survey will permit a study of the age at which occupational stability is reached for differing occupational grades. Also, the survey will provide data for a study of the relationships between occupational status, educational background, and fertility.

This series of studies of social mobility represents the first time, to the best of this writer's knowledge, that a random sample of the population has been used in England as the basis for extensive sociological research.

American studies of social mobility have usually approached the problem from a sectional or community basis,⁴ or have been based upon scattered and unrelated samples.⁵ The work of Alba Edwards with census data, although more general in nature, is comparable to the English studies in scope.⁶ Centers and others have utilized opinion polling techniques and a nation-wide sample as the basis of studies of social class and related subjects.⁷ Differences in methodology cannot be discussed in this brief paper.

Relatively few community studies—in our sense of the term—have been made in England. As a part of the Nuffield research, however, one such study has been completed.

⁴ I.e., Percy E. Davidson and H. Dewey Anderson, *Occupational Mobility in an American Community*, Stanford: Stanford University Press, 1937.

⁵ I.e., Pitirim Sorokin, *Social Mobility*, New York: Harper and Brothers, 1927.

⁶ Alba M. Edwards, *A Social, Economic Grouping of the Gainful Workers of the United States*, Washington, D. C.: Bureau of the Census, 1930. Also see: Edwards, *Population: Comparative Occupation Statistics, 1870-1940*, Washington, D. C., 1943; and Anderson and Davidson, *Occupational Trends in the United States*, Stanford: Stanford University Press, 1940.

⁷ Richard Centers, *The Psychology of Social Class*, Princeton: Princeton University Press, 1949; also, G. Gallup and S. F. Rae, *The Pulse of Democracy*, New York: Simon and Schuster, 1940; "The People of the United States—A Self-Portrait", (Fortune Surveys) *Fortune*, (February, 1940); H. Cantril, "Identification with Social and Economic Class", *Journal of Abnormal and Social Psychology*, 38 (1943), 74-80; and J. M. Wallace, F. W. Williams and H. Cantril, "Identification of Occupational Groups with Economic and Social Class", *Journal of Abnormal and Social Psychology*, 39 (1944), 482-485.

² *Ibid.*, p. 36.

³ *Ibid.*, pp. 54-55. This original category scale including 30 occupations has been expanded by the consultation of experts, to include over one thousand occupations.

Starting with a concept of social class derived from Ginsberg and Marshall,⁸ a research team, using a combination of observation and interviewing, made a thorough study of the voluntary organizations in an English town of 14,000 population. Certain aspects of the English study may be compared with the studies of Boulder, Colorado⁹ and Muncie, Indiana.¹⁰ The English town had fewer organizations relative to its population than did Boulder, but the average membership per organization was greater. Thus the ratio of total membership to population was not very different in the two towns. In Muncie, the number of organizations relative to population was almost the same as that found in the English town. The average size of the organization was smaller in Muncie and therefore the ratio of total membership to population was also lower. Although we in the United States have the reputation of being "joiners", this comparison does not reveal any greater participation in voluntary organizations in the two American cities than there is in this particular English town, and this town was not considered to be exceptional in England.

Another study starting from the same theoretical basis,¹¹ and also related to the Nuffield Foundation studies, has recently been published under the title: "Social Class and Politics in Greenwich."¹² The methodology of this study cannot be discussed here, but its major object was to assess objectively the class structure of the local political organizations. The authors conclude that "... social class, in one or other of its protean manifestations, is the chief determinant of political behavior", and that the class structure "conforms closely to the public image of the parties, as the electorate views them, and voting appears to be more closely related to this public image of the

parties than to the detailed policies they propound."¹³

A second investigation into voting behavior as it is related to social class was conducted by a group of students at Manchester University.¹⁴ A sample of 500 electors was interviewed. An occupational classification was used and the social class of the interviewee was subjectively estimated. These students concluded that: "... a clear correlation between social class and voting behavior exists". They add that: "A clearer correlation between voting and social group will be obtained if we divide voters according to occupation, than that which results from a division by income: that is, if they are divided into industrial and non-industrial workers".¹⁵ They found, for example, that the lower ranks of the white-collar workers favored the Conservative Party as strongly as did the middle-class voters.

These studies of political behavior in English communities have been influenced, to some extent, by American studies in the same area.¹⁶ The writer will not attempt to compare the findings here. However, it may be pointed out that in general terms, like relationships between social status and political behavior are revealed in both societies.

In addition to the studies which have been mentioned in connection with the Nuffield Foundation, it should be pointed out that the Foundation is also carrying on the following investigations: a study of "school leavers"; an analysis of the occupations of the fathers of graduates of Cambridge, Glasgow, and "another Scottish university";¹⁷ a study of the students attending the Extramural Department of the University of London; an analysis of abstracts from the Scottish marriage registers; a study of the

¹³ *Ibid.*, 326-327.

¹⁴ A. H. Birch and Peter Campbell, "Voting Behavior in a Lancashire Constituency", *British Journal of Sociology*, 1 (September, 1950), 197-208.

¹⁵ *Ibid.*, p. 202.

¹⁶ Dewey Anderson and Percy E. Davidson, *Bal-lots and the Democratic Class Struggle*, Stanford: Stanford University Press, 1943; Paul F. Lazarsfeld, Bernard Berelson, and Hazel Gaudet, *The People's Choice*, New York: Duell, Sloan and Pearce, Incorporated, 1944; and R. Centers, *op. cit.*

¹⁷ Hester Jenkins and D. Caradog Jones, "Social Class of Cambridge University Alumni of the Eighteenth and Nineteenth Centuries", *British Journal of Sociology*, 1 (June, 1950), 93-116.

⁸ Morris Ginsberg, *Sociology*, London: Oxford University Press, 1934, p. 159; T. H. Marshall, *Citizenship and Social Class*, Cambridge: Cambridge University Press, 1950, p. 92.

⁹ F. A. Bushee, "Social Organization in a Small City", *American Journal of Sociology*, LI, (November, 1945) 217-226.

¹⁰ Robert S. Lynd and Helen M. Lynd, *Middletown*, New York: Harcourt Brace, Company, 1929.

¹¹ Ginsberg, *op. cit.*; Marshall, *op. cit.*

¹² Mark Benney and Phyllis Geiss, "Social Class and Politics in Greenwich", *British Journal of Sociology*, 1 (December, 1950) 310-327.

economic position of the so-called middle class, which takes the form of a series of budget studies; and an inquiry into recruitment to the higher civil service.

During the past year, F. M. Martin, Assistant Lecturer in Psychology at the London School of Economics, has been making a study of what he calls "Some Subjective Aspects of Social Stratification". He used the method of an opinion survey, drawing a sample from the electoral registers of Greenwich and Hertford. Among other things, the interviewers asked such questions as "How many classes would you say there are in this country?"; "Can you name them?"; "Which of these classes do you belong to?"; "Which class is the most powerful?" Only a preliminary analysis of the responses has been made.

Another project, related to the Nuffield studies, which is being carried on separately at the London School of Economics by a research team composed of both sociologists and psychologists, and of which the writer was a member during the past year, is an investigation into social status differences in child rearing practices and their impact upon the behavior and personality of thirteen and fourteen year old boys.¹⁸ This necessarily involves a study of the boys' attitude-value systems, which may be related to the social status of their parents. The Hall-Jones occupational scale, mentioned above, was used as a criterion of social status.

A battery of questionnaires and tests was devised, by which factual data, opinions, and emotional responses, could be elicited. This battery of tests was administered to a total of 800 boys in three half-day sessions in each of nine Grammar and Secondary Modern schools in Greater London. The schools in the sample were selected upon the basis of the subjective class typicality of their student bodies. The group testing was completed in the spring of 1951, and it is planned that a psychiatric social worker will interview a selected sample of the boys' mothers, obtaining information relative to child training and other phases of the socialization process.

¹⁸ This research is under the direction of Dr. Hilde Himmelweit and is supported by the Department of Sociological and Demographic Research and by the Social Research Division of the London School of Economics.

This is the first study of its kind in England, and from its conception the research team has been cognizant of the desirability of repeating the study in several countries.¹⁹

The writer is now in the process of setting up a research project which will repeat parts of the London study in the United States. Such a study should result in cross-cultural comparisons, which would provide some additional insights into national differences.

The London research group was familiar with the work of American students in the areas of child rearing and social class.²⁰ These American researches influenced the formulation of hypotheses in the London study and were also used in devising some of the group testing instruments.

A number of other studies related to social class are in progress in England.²¹ The above discussion is only partial and selective.²²

The wide use of occupational grade as a major criterion of social class is noteworthy inasmuch as it represents a deviation from class theory usually associated with English

¹⁹ In addition to the English students participating, there were representatives of Australia, New Zealand, Canada, and the United States.

²⁰ Among other studies, the following should be mentioned: the work of Lloyd Warner and associates; the work of the Committee on Human Development of the University of Chicago; and more specifically, A. Davis and R. Havighurst, "Social Class and Color Differences in Child Rearing", *American Sociological Review*, XI (1946) 698-710, and A. Green, "The Middle Class Male Child and Neurosis", *American Sociological Review*, 11 (1946), 31-41.

²¹ See: *Register of Research in the Social Sciences in Progress and in Plan*, published annually for the National Institute of Economic and Social Research, London: Cambridge University Press, 1950. Several studies of fertility are in progress which continue the earlier studies of Glass, Charles Moshinsky, and Gray. See: *Political Arithmetic*, edited by Lancelot Hogben, 1938; and the *Journal of the Royal Statistical Society*. Also, the study of professions and professionalism, begun by Carr-Saunders, is being continued at the London School of Economics. See Norbert Elias, "Studies in the Genesis of the Naval Profession", *British Journal of Sociology*, 1 (December, 1950), 291-309.

²² The apparent emphasis upon work being done at, or in connection with the London School of Economics arises from two sources: the writer's experience at the school during the past year, and the fact that the Department of Sociological and Demographic Research, the Social Research Division, and the Nuffield Research Unit at the school are, no doubt, the most active research organizations in the area of social stratification in England.

and European scholars.²³ The frequent utilization of public opinion polling methods and techniques should also be noted. These recent developments represent a more objective approach to problems of social stratification than was employed previously. Since the

²³ This is a methodological device which raises the whole question of social status vs. social class. Much of the research in both England and America which is called social class study is really concerned primarily with social status. Obviously, the two concepts cannot be separated, but the social status emphasis which usually accompanies the use of occupational scales does not agree with much of the English theory, particularly that associated with the London School of Economics.

war, social surveys and other kinds of social investigations have become widely accepted as a vital part of the machinery of the welfare state.²⁴ The social class investigations are a part of this trend in social research. A closer and more continuous relationship between social research and social policy is in evidence in England than in the United States. We, on the other hand, appear to be more dependent upon war or depression to bring about a close functional articulation between research and national social policy.

²⁴ See: Mark Abrams, *Social Surveys and Social Action*, London: William Heinemann, Ltd., 1951.

AN INQUIRY INTO THE MEANING OF MINORITY GROUP ATTITUDE EXPRESSIONS

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THE purpose of this paper is to discuss some of the apparently contradictory findings of a recent study of attitudes toward minority groups and to attempt some analysis of the meaning of verbal expressions toward minority groups as they appear to be related to other behavior. The data for this analysis come from a five-month study of the expressed attitudes of people in a rural, midwestern, cornbelt, county-seat community which we shall designate as Maple County. This community, like many midwestern rural communities, has few members of the traditional minorities. There are less than twenty Jewish residents and fewer than thirty Negro residents in a community of

25,000 people. The setting for our analysis of attitudes is, therefore, one in which the people have little contact with the minorities toward whom they were asked to express attitudes.

This study was more than a study of attitudes as expressed in response to statements of the agree-disagree type. In order to understand something of the role of minorities in the social structure and the behavior of the people of the community toward minorities, we used the participant-observer technique as well as a set of formal interviews with a sample of the adult residents. In addition, our interviewers were themselves intensively questioned each evening when they returned from field work in order to check on the participant-observer notes and to swell our growing file of incidents, folklore, and observation of action. Finally, nearly all minority group families in the county were interviewed to obtain their own interpretation of their position in this community.¹ We believe this combination of methods provides some basis for further inquiring into the

* This paper is based on data from a study of minority groups in a midwestern rural community. The study was carried out by a committee of the *Michigan State College Social Research Service* of which the senior author was chairman. The writers are deeply grateful to members of the committee as well as the *American Jewish Committee* and *Anti-Defamation League* for assistance. These agencies provided funds which made the research possible. The interpretations made in this paper are the responsibility of the writers however, and any errors should be charged to them alone. The data on which the paper is based are in the files of the Social Research Service. They will appear in forthcoming publications.

¹ The Negroes were interviewed by a Negro member of the staff as well as by a white member. This provided a check on the information obtained by the latter.

meaning of the verbal expressions of attitudes obtained on traditional attitude scales.

In addition to our observational study of the community and the responses to a set of structured attitude questions of the scaled agree-disagree type, we also asked each of the 430 persons interviewed certain questions which required free responses. These were asked prior to any mention of minorities and before the respondents were asked to express their agreement or disagreement with the scaled attitude statements. Our inquiry into the meaning of attitude expressions is based, therefore, on (1) the relationship between free response and structured response to attitude statements, and (2) the relationship between the apparent prevalent attitudes, as expressed by this sample, to our observations of actual behavior in the community.

There are three general statements which may be made immediately from our analysis of this community. First, it is clear that relationships with minority groups of any kind are not a common topic of conversation or interest. Rarely is there any free expression of opinions or comments about minorities. The few Negroes and Jews who live in the community are relatively inconspicuous. Most people know little, if anything, about them.

Second, minority group members are rarely mentioned in response to the non-directive questions on the formal interview schedule. For example, when the question "What kinds of people are there that this country would really be better off without" was asked, only 31, or 7%, of the respondents mentioned Jews; 24, or 5.6%, mentioned Negroes; even less mentioned other minority groups. On a similar question, "Are there any kinds of people living around here that folks would just as soon not have around," no one mentioned Jews and only 14 or 3% mentioned Negroes.

The third generalization is that the adult sample of this community consistently expressed a set of pervasive and highly unfavorable sentiments toward all the minority groups about whom they were asked. In response to the scaled agree-disagree statements the majority of our respondents gave clearly unfavorable responses to nearly all statements. The larger proportion expressed these unfavorable sentiments in response to statements designed to provoke traditional

stereotypes, or stereotyped patterns of discrimination.

The above conclusions together with further analysis of our total data caused us to raise three related and overlapping questions: (1) How salient are these expressions of attitudes to the people who express them? (2) What is the relationship of such expression of attitudes to the situation in which they are expressed? (3) What is the image of the minority group member held by our respondents and how does it correspond with the image of actual resident minority group members in the community? Although we will use our data to discuss each question separately, they all contribute to an inquiry into the meaning of attitude expressions.

SALIENCY

One might assume that since most Maple County adults, according to our sample, are quite unfavorable in their tested attitudes toward Jews, Negroes, and other minority groups, that Maple County people in general are greatly concerned about their relationships with such groups. Moreover, we might be led to conclude that many people in this county are actively hostile toward minority groups and will, therefore, behave in a hostile fashion toward them. There is little evidence that this is the case. Our observation of the community, as has been mentioned, indicated that there was little discussion or concern with minorities and practically no expression of any problems presented by them.

The responses to the scaled items indicate that most people are intolerant of some image of the several different minority groups. The responses to the unstructured or free-response items, however, indicate that "free-floating" hostility toward particular minorities, including those represented in the community, is not strong. It does not occur to many people to think of Jews or Negroes as the kind of people they would rather not have around. Nor are they thought of as the kind of people that the country would be better off without. Certainly we should expect, if feelings about minority groups are of any deep-seated concern to our respondents, that they would indicate such concern when given these two wide-open opportunities. Active anti-Semites, for example, are presumably outspoken and can

even manufacture occasions to express their hostility. Not one of 430 respondents in this community gave an anti-Semitic answer to the one free response question involving the local Jews.

Since there are so few members of minorities in this community and since the free responses in the formal interview situation, as well as our community observation, indicate that these minorities are not the object of active hostility, we may conclude that the intolerant attitudes expressed by our respondents are directed, for the most part, toward distant and ill-defined images of minority group members. In other words, the relationship of such minorities to our respondents was not regarded by them as a salient problem. Nor is there evidence of any great amount of active hostility.

In the same connection we might compare the attitude expressions of Maple County residents with those of other types of communities. Insofar as direct comparison is possible (and modification of question wording makes this a tentative procedure) the responses of our sample to the agree-disagree type of statements are remarkably similar to those obtained in other types of communities throughout the country. For example, the statement, "Americans must be on guard against the Jews getting too much power," was disagreed with by only 17½% of our respondents. A similar statement was used in Baltimore² where approximately the same results were obtained.

We would suggest that such an expression of sentiment in Maple County has a quite different meaning from the same expression of sentiment by the people of Baltimore, Minneapolis, or New York. When Maple County residents agree that "Americans must be on guard against the Jews getting too much power," for example, it has little reference in local affairs. There is no possibility of the small group of Jews in Maple County having any significant power in the determination of Maple County affairs. In Baltimore, on the other hand, it is possible that such a response has its primary orientation in relation to the prevailing local political situation. A Baltimore resident who agrees

with such a statement may be thinking of the possibility that the Jewish residents will gain control of the city government. Hence, in Baltimore, such an expression may have high saliency in the actual local situation. But in Maple County this same expression can only have meaning in regard to a relatively distant and abstract possibility. Moreover, our observation of the community, as well as still other free responses obtained through interviews, leads us to believe that this statement about Jews is thought of in terms of a still more widely held sentiment: namely, that it is a good idea to be on guard against any group getting too much power.

ATTITUDE VS. SITUATION

What does the preponderance of unfavorable expressions, as elicited by the usual scaled attitude measurements, mean in terms of actual behavior toward minorities in this community? We had what amounted to a natural experimental situation in which to examine this question.

Shortly before our formal interviewing began, a Negro couple, the Comptons, had moved into a locality which we may call Smithville. The Smithville locality was one of ten open-country rural localities which had been drawn for our sample of this particular part of the county. The responses of adults in this locality to the scaled attitude statements were not significantly different from the responses of adults in other localities. About nine out of ten respondents, both in Smithville and other rural localities, agreed with the statement: "It's a good idea to keep Negroes out of white neighborhoods."

We also used a free response or open-end type of question to examine the same sentiment. Our respondents were asked "If a Negro family were to move in next door or on to the farm next to yours, do you think anything should be done about it or not?" In the other rural localities this elicited quite unfavorable responses. But in the Smithville locality a significantly larger proportion than in the other localities responded by saying, "No, nothing should be done."

Moreover, our observation of the people in this locality revealed that nothing of any hostile or discriminating nature was done. Actually there were some overtures of welcome to the family when they moved into

² *The Baltimore Poll*, mimeo, New York: Department of Scientific Research, American Jewish Committee, 1949.

the locality. Some of the neighbors invited them to attend the local church. Perhaps the most significant thing that occurred was the redefinition of the color of the Negro couple. Although it had been reported in advance that the couple that was moving into the neighborhood was Negro, the residents soon came to believe that they were not actually, or at least not wholly, Negro. One young woman in the locality stated, "They say they are Negro, but really they're pretty light; she is just real white."

The members of this locality, furthermore, defined the Negro couple as hardworking people and as people who attend to their own business. Both of these are virtues in this rural area. Such terms are frequently used to identify members of the community who are well-accepted and approved. Here is clearly a case where agreement with a statement expressing a stereotyped pattern of discrimination is in no way predictive of behavior in the actual situation. But it should be recognized that the Comptons, with the exception of skin color, met all the other expectations of the locality as applied to acceptable neighbors. They worked hard, minded their own business, were quiet, attended church, and, in general, behaved like most other members of the neighborhood. Had the Comptons behaved like one or two white members of the neighborhood, who were designated by our respondents as "no-count," it is probable that the behavior toward them would have been quite different.

This leads to the reverse question. Under what circumstances will the unfavorable tendencies reflected in the scaled attitude items be expressed in actual hostility? This question assumes that the unfavorable attitudes measured by the scaled items represents the latent or potential set of tendencies which might be reflected under some circumstances.

Our observation of Maple County suggests that such tendencies may be translated into action when members of the minority groups, toward whom prejudice is directed, do not behave in accordance with the code of the community. The case of Arthur Grossman illustrates this point. Arthur was the only young Negro man in the community. At the time of our field work he was a graduating high school senior. He is the only son of the one Negro family that had shown out-

spoken resentment of its inferior role in the community. The family itself was torn by domestic bickering which has since led to a divorce. Arthur had a history of delinquent behavior and had served a sentence at a reform school. Whether or not this delinquency is related to Arthur's unhappy home life with the demands constantly made upon him by his mother, or to the community's hostile response to the Grossman family, the fact remains that neither Arthur nor his family were regarded as highly desirable members of the community.

During the latter part of his senior year in high school, Arthur dated and was frequently seen with a young white girl. Her parents definitely disapproved of this and there is reason to believe that the community as a whole disapproved. Although there was no overt aggression toward Arthur, there was considerable evidence of the development of hostility, and overt aggression might have occurred had he remained in the community.

It was never clear what was the major focus of this aggression. It may have been due solely to a deep-seated sentiment, violated by Arthur, with respect to male Negro-white female relationships. Or it may have been due to the community's judgment of Arthur's general undesirability—a judgment augmented by his violation of Negro-white sex taboos. In any event, this case is in sharp contrast to that of the Comptons where the expressed feeling of prejudice toward Negroes was never activated in any way. Although the expressed attitudes toward Negroes are very unfavorable, the actual behavior of Maple County residents toward Negroes seems to vary with situational factors as well as the generally expressed sentiments which were measured by our attitude scales.

Still another question related to the problem of attitude expression and other behavior is that involving the nature of the situation in which attitudes are verbalized. In a number of instances we have had occasion to talk with people concerning their behavior in relation to various minority group members. Such behavior covered a variety of group or role situations. Some of these situations we were actually able to observe and thus verify as overt behavior. One case in point is that of a prominent

school man in Maple County. He was interviewed with the formal schedule in his school office. In this situation he gave only strongly tolerant responses to the attitude items. On the basis of this evidence he would be rated an extremely tolerant person.

In addition to the schedule we had verified reports of this educator's tolerant, even actively cooperative behavior. For example, on one occasion a Negro singer was to appear before the high school student body. When it appeared that hotel service would be denied this singer, our educator took direct action with the hotel owner to see that service was provided. In this instance his own actions actually might have jeopardized his position, but he appeared to feel it necessary, as an administrator of the school, to take a very definite stand. Since that time the hotel regularly has provided service for Negroes.

But in other positions, when the educator was no longer functioning in the role of school man but as a member of one of the luncheon clubs or as a "citizen" of the community, he expressed to members of the research team strongly intolerant attitudes toward both Negroes and Jews. Not only were such statements made about Negroes and Jews in general, but also he expressed hostility toward certain local members of each minority group. In fact he even described the way in which he discriminated against some Negroes, particularly the Grossman family.

The same type of inconsistency in verbalization as well as other behavior was noted among other persons with whom the researchers had an opportunity to become well acquainted. For example, one of the most prominent rural leaders in the county has on several occasions expressed distinctly intolerant attitudes toward certain minorities. On the attitude scale, however, he has a very tolerant score. And in his role as a rural leader we would very much doubt if he would behave publicly in any hostile way. As a matter of fact he was a leader in obtaining permission for the arrival of, and finding means to take care of, displaced persons in the county.

Which sentiment is the real attitude of the people we have mentioned? And which is predictive of what behavior? We would suggest that it is necessary to ask in what situation does the respondent manifest his

attitudes, and in what role is he functioning at the time the attitude is expressed? The verbalized sentiments may be closely related to other behavior of the person in those situations which he defines as identical or nearly identical to that in which he has responded.³ But in different groups and in different roles the same person may behave entirely differently. The expectancies of the present situation and the role in which the person is functioning may greatly modify what might be expected from statements made in other situations and other roles. If this is true, it may explain the fact that we found decidedly more tolerant responses among school youth than among adults.

This discussion of attitude and situation leads us to conclude tentatively that one explanation of the differences between stated and other behavior toward minority groups is to be found in the fact that behavior is a function of the particular situation. That is, the attitude or sentiment toward a minority is only one of the variables in the situation. Likewise, we suggest that the role and the expectancies associated with the role are also important variables in an individual's behavior toward minorities.

THE IMAGES OF MINORITIES

The third problem we set ourselves to discuss pursues a somewhat different line of inquiry into attitude expressions. In Maple County we were constantly faced with the necessity of defining the images which our respondents had in mind when they expressed particular attitudes. In other communities, where there are numerous members of minority groups with whom respondents may have contact, this problem may not arise so frequently. But in Maple County we were never sure toward whom people were directing their hostility when they expressed, for example, strongly unfavorable attitudes toward Jews.

Repeatedly we had cases of misidentification of Jewish people. Numerous respondents told us that a particular merchant in Johnstown was Jewish. Investigation revealed that this man was not of the Jewish faith, but Catholic. On no occasion has he had contact with any kind of Jewish group. Again, live-

³ We are indebted to our colleague, Professor Gregory Stone, for his emphasis upon this point.

stock buyers were continually identified as "Jew buyers." One livestock buyer who was definitely pointed out to us as Jewish was a member of a family which had long been active in the local Catholic church.

These cases were not unique to Johnstown. In one of the subsidiary trade areas the interviewers, as well as the participant-observers, were told by many people that there was a Jewish merchant in town. He appeared to have very definite characteristics in the minds of our several informants. However, our informants never agreed upon any particular merchant when pressed to identify him. Our investigation showed that there has not been a Jewish storekeeper in that town for more than twenty years.

In contrast to these cases, there are in Maple County Jewish people who are orthodox adherents of the Jewish religion but who were never identified by any of our respondents as Jewish. One such instance was brought to our attention by a young man who actually is Jewish and is so recognized by the entire community. Incidentally, this recognition is not necessarily unfavorable in its consequences. He was in fact elected president of one of the local service clubs. This young man called our attention to a small business man who makes no effort to hide the fact that he is Jewish. The fact remains, however, that there are probably only a very limited number of people in the community who are aware that the latter is Jewish and that he contributes regularly to the synagogue in a nearby community.

Somewhat indicative of the same fluctuation in the images of minority groups is the case of Maggie Schultz. She is well-known among members of the upper social strata of Johnstown and has been for many years a member of a Protestant church. She is the daughter of a Jewish merchant who is now deceased, but she herself is never identified as Jewish. When it is pointed out by this woman or others that her father was Jewish, the usual comment is, "Well, really she is only half Jew."

These are sufficient illustrations to make the point that the image of the Jewish person is not clearly identified with real members of this minority group who live in the community. We must ask, therefore, toward whom is the respondent expressing intolerant attitudes? How does the image of the Jew

become attached to, or detached from, actual people living in the community?

This same phenomenon was noted also in relation to some Negroes in the community. One case is that of "Silky" Smith. Mr. Smith is the owner of a small mechanic's shop. He has lived in Johnstown all of his life, and graduated from the local high school where he was a well-known athlete. He is a veteran of World War I and almost yearly holds some important post, including that of Commander of a local unit of a national veteran's organization. He was recently invited to become a member of the Chamber of Commerce. Certainly the hostile attitudes expressed toward Negroes did not seem to include Mr. Smith. In fact, judging from our interviews with other Negroes, it would almost seem that Mr. Jackson is regarded by both Negroes and whites as a member of the dominant white society. This despite the fact that, because of pronounced racial characteristics, Mr. Smith could never actually "pass" into the white group.

One other point which bears on this same phenomenon should be made. We found no clear relation between statements involving what Myrdal called the "American Creed,"—i.e. such statements as "You should never judge a man by his race or religion"—and responses to numerous statements about minority groups. Our interviewers were constantly disturbed by the fact that respondents agreed with the "American Creed," almost without question, but at the same time agreed with all the unfavorable statements about minorities. The former never reported, however, that any of the respondents were disturbed or even aware of this apparent discrepancy.

This suggests that the response to the "American Creed" is likewise a cultural stereotype. Certainly, there appears to be no barrier to acceptance of the creed and acceptance also of stereotypes contradictory to this same creed. Moreover, this apparent discrepancy would seem to indicate again that there is an unclear picture of minority groups in the minds of our respondents.

These observations clearly indicate that it is impossible to specify the exact object of favorable or unfavorable attitudes as measured by the scaled responses. The image of a Jew may be applied to non-Jews. That is, non-Jews may be thought of as having

characteristics which are considered by our respondents as Jewish. Also, this same image of the Jew may be detached from some of the actual Jews living in the community. The same phenomenon, in a less extensive manner, has occurred with respect to the Negro image.

Because of such confused identity it is impossible to predict from a knowledge of verbal expressions by Maple County re-

spondents how the same respondent will behave toward specific members of a minority group. The particularity of situation, role, and specificity of image all lead to this inability to predict in Maple County. For adequate prediction it would be necessary to know the specific images which the majority peoples have of the minority persons or groups and in what specific types of situations behavior is likely to occur.

A FORMAL THEORY OF INTERACTION IN SOCIAL GROUPS

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TO a person addicted to applied mathematics, any statement in a non-mathematical work that contains words like "increase," "greater than," "tends to," constitutes a challenge. For such terms betray the linguistic disguise and reveal that underneath the words lie mathematical objects—quantities, orderings, sets—and hence the possibility of a restatement of the proposition in mathematical language. But what purpose, other than an aesthetic one, does such a restatement serve? In this paper I shall attempt to show, by means of a concrete example, how mathematization of a body of theory can help in the clarification of concepts, in the examination of the independence or non-independence of postulates, and in the derivation of new propositions that suggest additional ways of subjecting the theory to empirical testing.

The example we shall use is a set of propositions that constitutes a part of the theoretical system employed by Professor George

C. Homans, in *The Human Group*,¹ to explain some of the phenomena that have been observed of group behavior. This particular example was selected for a number of reasons: first, although non-mathematical, it shows great sophistication in the handling of systems of interdependent variables; second, Professor Homans takes care with the operational definition of his concepts, and these concepts appear to be largely of a kind that can be measured in terms of cardinal and ordinal numbers; third, Professor Homans' model systematizes a substantial number of the important empirical relationships that have been observed in the behavior of human groups. Whether his theory, in whole or part, turns out to be correct or incorrect (and this is a question we shall not raise in the present paper), it will certainly receive careful attention in subsequent research on the human group.

THE SYSTEM: CONCEPTS AND POSTULATES

The system will be described in my own language. After I have defined the variables and set forth the postulates, I will discuss what I believe to be the relationship between the system and the language that Homans employs in his book.

The Variables. We consider a social group (a group of persons) whose behavior can be characterized by four variables, all functions of time:

* I am indebted, for stimulation, assistance, and suggestions in the formulation of this theory, to my colleagues in a research project on administrative centralization and decentralization sponsored at Carnegie Institute of Technology by the Controllershship Foundation, and particularly to Professor Harold Guetzkow, who has worked closely with me at every stage of the theory formulation. Valuable help has also been received from Professor George C. Homans of Harvard University, and from seminars at Columbia University and the University of Chicago, and a session at the 1951 annual meetings of the American Sociological Society, where various portions of the paper were read and discussed.

¹ New York: Harpers, 1950.

$I(t)$ —the intensity of *interaction* among the members;

$F(t)$ —the level of *friendliness* among the members;

$A(t)$ —the amount of *activity* carried on by members within the group;

$E(t)$ —the amount of activity imposed on the group by the external environment (the "*external system*")

This particular set of variables includes most of those employed by Homans in the first part of his book (he adds others in his later chapters), and the underlined terms are the ones he uses. In this paper we will assume that operational definitions (Homans' or others) have been assigned to the variables, such that the behavior of a group at any moment in time can be measured in terms of the four real numbers I , F , A , and E . For our purposes, we need to make only two points clear about these operational definitions.

First, since the units in which such variables can be measured are somewhat arbitrary, we shall try to make use only of the ordinal properties of the measuring scales—the relations of greater or less—and, perhaps, of certain "natural" zero points.

Second, since the variables refer to the behavior of a plurality of human beings, they clearly represent averages or aggregates. For the interaction variable, I , let I_{ij} represent the number of interactions per day (or the time, per day, spent in interaction), of the i th member of the group with the j th member. Then we could define I as the average rate of interaction per member—i.e., as $1/n$ times the sum of I_{ij} over the whole group, where n is the number of members. Similarly, we could define F as the average friendliness between pairs of members; and A might be defined as the average amount of time spent per member per day in activity within the group.² Finally, E might be defined as the average

amount of time that would be spent per member per day in activity within the group if group members were motivated only by external pressures.³

The Postulates. We postulate three sets of dynamic relations among the variables, treating $I(t)$, $F(t)$ and $A(t)$ as endogenous (dependent) variables whose values are determined within the system: while $E(t)$ is an exogenous (independent) variable.

(1) The intensity of interaction depends upon, and increases with, the level of friendliness and the amount of activity carried on within the group. Stated otherwise, we postulate that interaction is produced, on the one hand, by friendliness, on the other, by the requirements of the activity pattern; and that these two causes of communication are additive in their effect. We will postulate, further, that the level of interaction adjusts itself rapidly—almost instantaneously—to the two variables on which it depends.

(2) The level of group friendliness will increase if the actual level of interaction is higher than that "appropriate" to the existing level of friendliness. That is, if a group of persons with little friendliness are induced to interact a great deal, the friendliness will grow; while, if a group with a great deal of friendliness interact seldom, the friendliness will weaken. We will postulate that the adjustment of friendliness to the level of interaction requires time to be consummated.

(3) The amount of activity carried on by the group will tend to increase if the actual level of friendliness is higher than that "appropriate" to the existing amount of activity, and if the amount of activity imposed externally on the group is higher than the existing amount of activity. We will postulate that the adjustment of the activity level to the "imposed" activity level and to the actual level of friendliness both require time for their consummation.

These three relations can be represented

² The concept of "activity within the group" might require rather sophisticated treatment. For example, time spent by a worker in daydreaming about his family or outside social relations might, ideally, be excluded from his activity within the group. For some purposes, we might wish to regard as "activity within the group" *uniformities* of behavior among group members—that is, the degree to which activity lies within the group might be measured by similarity of behavior. On this point, see Homans, *op. cit.*, pp. 119–121.

³ This formulation reveals that the direct measurement of E might pose greater problems than the direct measurement of the other variables. In most cases, we would attempt to measure E indirectly in terms of the magnitude of the force producing E —in somewhat the same manner as the force of the magnetic field is sometimes measured by the strength of the current producing it. The problem is by no means insoluble, but we do not wish to deal with it in detail here.

by the following equations, where $\frac{dx}{dt}$ represents the derivatives of x with respect to time.

$$(1.1) I(t) = a_1 F(t) + a_2 A(t)$$

$$(1.2) \frac{dF(t)}{dt} = b[I(t) - \beta F(t)]$$

$$(1.3) \frac{dA(t)}{dt} = c_1[F(t) - \gamma A(t)] - c_2[E(t) - A(t)]$$

All constants in these equations are assumed to be positive.

If we look at equation (1.2), we see that βF may be regarded as the amount of interaction "appropriate" to the level, F , of friendliness. For if $I = \beta F$, then F will have no tendency either to increase or decrease. The reciprocal of the coefficient β , that is, $1/\beta$, might be called the "congeniality coefficient" since it measures the amount of friendliness that will be generated per unit of interaction.

Similarly, from equation (1.1) we see that $a_1 F$ may be regarded as the amount of interaction generated by the level, F , of friendliness in the absence of any group activity. That is, if $A = 0$, then $I = a_1 F$. Further, the coefficient a_2 measures the amount of interaction generated per unit of group activity in the absence of friendliness. Hence, a_1 and a_2 might be called "coefficients of interdependence."

Finally, from equation (1.3) we see that the reciprocal of the coefficient γ measures the amount of activity that is generated per unit of friendliness, in the absence of external pressure. We may call $1/\gamma$ a coefficient of "spontaneity." The remaining coefficients, b , c_1 and c_2 , determine how rapidly the system will adjust itself if it starts out from a position of disequilibrium.

Relation to Homans' System. These equations, and their verbal interpretations, appear to represent with reasonable accuracy the larger part of the generalizations about the interrelations of these four variables which Professor Homans sets forth in Chapters 4 and 5 of his book.⁴

⁴ See especially the italicized statements in *op. cit.*, pp. 102, 111, 112, 118, 120. The reader can perhaps best test the translation himself by reference to Professor Homans' text. In doing so, he should take due note of footnotes 2 and 3, above. Professor Homans has been kind enough to go over the equations (1.1)–(1.3) with me. He concludes that the mathematical treatment does not do violence to the meanings of his verbal statements, but

The next section of this paper will be devoted to an analysis of the system represented by equations (1)–(3). It should be emphasized again that this system is only a partial representation of the complete system of hypotheses proposed by Homans, and, of course, an even sketchier representation of reality. Furthermore, the assumption of linear relations in the equations is a serious oversimplification, which will be remedied in a later section of the paper. Nevertheless, the system incorporates several of the important relationships that might be hypothesized as holding among the four variables and which Homans found did, in fact, hold in the situations he investigated.

THE SYSTEM: DERIVATIONS FROM THE POSTULATES

A number of well-known techniques may be applied to derive consequences from the system of postulates that could be tested by comparison with empirical data.

(1) The equations might be solved explicitly to give the time path the system would follow from any particular initial position. This presents no mathematical difficulties, since systems of linear differential equations with constant coefficients can be solved completely and explicitly. On the other hand, the solutions would be useful for prediction only if the constants of the equations were known or could be estimated. For this reason, the explicit solutions would seem to be of interest at a later stage in the development of measurement instruments and testing of the theory, and we will not dwell on them here.

(2) The equilibrium positions, if any, of the system might be obtained, and their properties examined. This would permit us to make certain predictions about the behavior of the system when it was in or near equilibrium.

(3) The conditions for stability of the equilibrium might be examined. Since a system that is in equilibrium will not generally remain there unless the equilibrium is stable, we will ordinarily be justified in using the conditions of stability in predicting the behavior of any system that is observed to remain in or near equilibrium.

that the equations do not capture all of the interrelations he postulates—that they tell the truth, but not the whole truth. With this later qualification I would concur.

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(4) Starting with the assumptions of equilibrium and stability, we may be interested in predicting what will happen if the independent variables or the constants of the system are altered in magnitude—that is, what will be the new equilibrium position to which the system will move. This method, the method of “comparative statics,” is one of the most powerful for deriving properties of a gross qualitative character that might be testable even with relatively crude data.

Our method, therefore, will be to derive first the conditions of equilibrium, next the conditions of stability, and finally the relations that can be obtained by applying the method of comparative statics.

Equilibrium. An equilibrium position is one in which the variables remain stationary. Hence the conditions of equilibrium can be found by setting dF/dt and dA/dt equal to zero in equations (1.2) and (1.3), respectively, and solving the three equations for I , F , and A in terms of E . Designating by I_0 , F_0 and A_0 the equilibrium values corresponding to E_0 , we find:

$$(1.4) I_0 = a_1 F_0 + a_2 A_0$$

$$(1.5) 0 = b(I_0 - \beta F_0)$$

$$(1.6) 0 = c_1(F_0 - \gamma A_0) + C_2(E_0 - A_0)$$

Eliminating I_0 from (1.5) by using (1.4), we get:

$$(1.7) F_0 = \frac{a_2}{\beta - a_1} A_0$$

Substituting this value of F_0 in (1.6) and solving for A_0 , we get:

$$(1.8) A_0 = \left[\frac{c_2(\beta - a_1)}{(c_1\gamma + c_2)(\beta - a_1) - (c_1 a_2)} \right] E_0 = \left[\frac{c_2(\beta - a_1)}{c_2(\beta - a_1) + c_1\{\gamma(\beta - a_1) - a_2\}} \right] E_0$$

whence:

$$(1.9) F_0 = \left[\frac{c_2 a_2}{(c_1\gamma + c_2)(\beta - a_1) - (c_1 a_2)} \right] E_0$$

Stability of Equilibrium

To determine whether the equilibrium is stable, we consider the so-called “characteristic equation” associated with equations (1.2) and (1.3) after I has been eliminated by substitution from (1.1):⁵

$$(1.10) \begin{vmatrix} -b(\beta - a_1) - \lambda & ba_2 \\ c_1 & -(c_1\gamma + c_2) - \lambda \end{vmatrix} = 0$$

When expanded, this becomes:

$$(1.11) \lambda^2 + \{c_1\gamma + c_2 + b(\beta - a_1)\}\lambda + b\{(c_1\gamma + c_2) - a_2c_1\} = 0$$

It is a well-known property of such dynamical systems that for stability the real parts of the roots of λ must be negative, and conversely, that if the real parts of the roots are negative, the system will be stable. By solving (1.11) for λ , this can be shown to imply:

$$(1.12) c_1\gamma + c_2 + b(\beta - a_1) > 0, \text{ and}$$

$$(1.13) (\beta - a_1)(c_1\gamma + c_2) - a_2c_1 > 0.$$

Since all constants are assumed positive, we obtain from (1.13) the requirement that:

$$(1.14) \beta > a_1$$

If (1.14) holds, (1.12) will, in turn, be automatically satisfied.

Hence (1.13) and (1.14) together give us necessary and sufficient conditions for stability. We proceed now to an interpretation of these conditions.

Stability condition (1.14) may be written:

$$(1.15) \beta F_0 > a_1 F_0$$

That is, we require for stability that the amount of interaction (βF_0) required to generate the equilibrium level of friendliness be greater than the amount of communication ($a_1 F_0$) that would be generated by the equilibrium level of friendliness in the absence of any group activity. For if this were not so, (i.e., if $a_1 > \beta$) an initial level of friendliness, F_1 , would produce interaction, $I_1 = a_1 F_1$, which would further increase the friendliness

to $F_2 = I_1/\beta = \frac{a_1 F_1}{\beta} > F_1$, and we would get

an ascending spiral such that the amount of friendliness and the amount of interaction would increase without limit:

$$F_1 < F_2 < F_3 < \dots < F_n, \text{ and} \\ I_1 < I_2 < I_3 < \dots < I_n$$

We can show that the other stability condition (1.13), is required to prevent a similar ascending spiral between A and F .

Behavior of the System: Comparative Statics. The equalities and inequalities we have derived as conditions for equilibrium and stability of equilibrium enable us to deduce certain propositions about how the

⁵ The mathematical theory involved here is discussed in Paul A. Samuelson, *Foundations of Eco-*

nomic Analysis, Cambridge: Harvard University Press, 1947, p. 271.

system will behave when its equilibrium is disturbed, assuming the equilibrium to be stable.

Equilibrium may be disturbed by a change in E , the task imposed on the group, or by changes in one or more of the coefficients of the system (e.g., an increase or decrease in a_2). We wish to predict how the variables of the system will respond to such a shift.

The change in the equilibrium value of A with a change of E can be determined from (1.8). Stability requires (by (1.14)) that the numerator of the right-hand side of (1.8) be positive, and (by (1.13)) that the denominator be positive. Hence:

$$(1.16) \frac{dA_0}{dE_0} > 0$$

From (1.7), remembering (1.14), we get similarly:

$$(1.17) \frac{dF_0}{dA_0} > 0, \text{ hence } \frac{dF_0}{dE_0} > 0$$

Finally, from (1.4), we get:

$$(1.18) \frac{dI_0}{dE_0} = a_1 \frac{dF_0}{dE_0} + a_2 \frac{dA_0}{dE_0} > 0$$

We conclude that an increase in the activities required of the group by the external environment will increase (when equilibrium has been re-established) the amount of group activity, the amount of friendliness, and the amount of interaction. As E decreases toward zero, A , F and I will decrease toward zero. But this is precisely the hypothesis that Homans employs to explain social disintegration in Hilltown,⁶ and to explain the difference in extension between the primitive and modern family.⁷

We ask next how large A_0 will be in relation to E_0 . From (1.8), in its second form, we see that the numerator on the right-hand side will be larger than the denominator if and only if:

$$(1.19) \gamma(\beta - a_1) < a_2$$

If (1.19) holds, then, we will have $A_0 > E_0$, otherwise $A_0 \leq E_0$. We will refer to a group satisfying condition (1.19) as one having *positive morale*. If the condition is not satisfied, we will say the group has *negative morale*.

What relations among the coefficients are conducive to positive morale? From (1.19),

we see that a_2 should be large, relative to the product of γ and $(\beta - a_1)$. But large a_2 means high interdependence, i.e., the group tasks are highly interrelated. From our previous interpretation of γ (i.e., that $1/\gamma$ measures spontaneity), we see that a high degree of spontaneity is conducive to positive morale—with large $1/\gamma$, or small γ , friendliness will tend to produce a relatively large amount of activity in addition to that required by the external environment.

As mentioned above, another condition conducive to positive morale is that $(\beta - a_1)$ be small: that there be a strong feedback from friendliness to more interaction to more friendliness. But we have seen that an approach to zero of $(\beta - a_1)$ means an approach to an unstable condition of the system (see equation (1.13)).

Now, from the stability condition (1.13), we know that a large value of $(\gamma c_1 + c_2)$ aids stability, but if we want γ small relative to a_2 for positive morale, we must depend on the ratio c_2/c_1 for stability. That is, under conditions of positive morale we require that the activity level, A , be more strongly influenced by the external demands than by the level of friendliness.

While we must be careful not to expect too much from a theory as highly simplified as this one, it may be interesting to note that the phenomenon of negative morale appears to be not unrelated to Durkheim's concept of *anomie*. In particular, a division of labor within a group that would result in little interrelationship of tasks (a_2 small) would, in our theory, be conducive to negative morale. This is a prediction that has received a considerable amount of substantiation from the Hawthorne studies and other empirical observations in industrial sociology.

We may inquire finally as to the time path whereby the system readjusts itself when it is disturbed from an initial equilibrium by a change in E_0 . It can be shown that the roots of λ in (1.11) are real. This implies that the system will not oscillate, but will start out toward the new equilibrium at a rapid rate, approaching it asymptotically.

GENERALIZATION TO A NON-LINEAR SYSTEM

It is time now to relax the assumption of equations (1.1)–(1.3) that the relations among the variables of the system are linear. The reason for dwelling at length on the

⁶ *Op. cit.*, pp. 356–362.

⁷ *Op. cit.*, pp. 263–265.

linear equations is that they can be regarded as an approximation to the more general equations of the non-linear system in the neighborhood of points of equilibrium.

Since we really do not have much empirical data as to the exact forms of the functions relating our variables, we shall strive in our treatment of the non-linear system to make as few assumptions as possible about these functions. The price we shall have to pay is to restrict ourselves largely to a graphical treatment and to the derivation of gross qualitative results. Nevertheless, in view of the roughness of the empirical observations we might hope to make, this restriction cannot be regarded as unduly serious at the present stage of development of the theory.

We will now assume our equations to be:

$$(2.1) \quad I = f(A, F)$$

$$(2.2) \quad \frac{dF}{dt} = g(I, F)$$

$$(2.3) \quad \frac{dA}{dt} = \psi(A, F; E)$$

where f, g, ψ are functions whose properties remain to be specified. If we replace I in (2.2) by its value as given by (2.1) we obtain, in place of (2.1)–(2.2) a new equation:

$$(2.4) \quad \frac{dF}{dt} = g(f(A, F), F) = \phi(A, F)$$

where ϕ is again a function of unspecified form. Henceforth, we will work with the system comprised of equations (2.3)–(2.4)—two differential equations for the determination of F and A .

Our method will be graphical, based on the "phase diagram" of F and A .⁸ Let us regard E , for the present, as a constant—a given parameter. Equation (2.3) gives us the time rate of change of A , and (2.4) the time rate of change of F , both as functions of F and A . Dividing the second by the first we get

$$df/dA = \frac{dF/dt}{dA/dt} = \phi(A, F)/\psi(A, F; E)$$

the rate of change of F relative to A for each pair of values of F and A . Now consider a graph (Figure 1) whose x-axis measures A , and whose y-axis measures F .

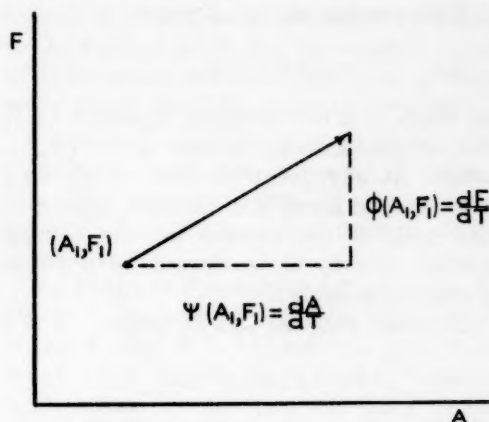


FIG. 1

Through any point (A_1, F_1) , draw a short line segment with slope $\phi/\psi = \frac{dF}{dA}$. Then this segment points along the path on which our system would begin to move if started from (A_1, F_1) .

By drawing such a line segment for each point of the (A, F) -plane, and connecting these into continuous curves, we find the paths the system will follow from any initial positions to the subsequent position (and possibly to equilibrium). The collection of all such paths is commonly called the "direction field" of the system (see Figure 2).⁹

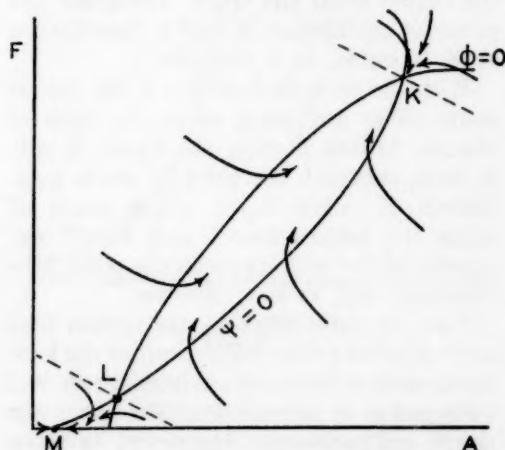


FIG. 2

⁹ For a more detailed explanation of the construction of the direction field, see Lester R. Ford, *Differential Equations*, New York: McGraw-Hill, 1933, pp. 9–11. The direction field corresponding to the linear system of this paper is discussed and illustrated by Ford on pp. 48–52. His Figure 14, page 51, corresponds to the case of stable equilibrium.

⁸ On the method employed, see Alfred J. Lotka, *Elements of Physical Biology*, Baltimore: Williams and Wilkins, 1925, pp. 77–97, 143–151.

Now consider the set of points

$$(2.5) \quad \frac{dA}{dt} = \psi(A, F; E) = 0$$

at which A is not changing. Equation (2.5) will, in general define a curve in the (A, F)-plane. At any point on this curve, since ψ is zero and hence A is constant, but not F, the path of the system will be vertical (either upward or downward as $\phi > 0$ or $\phi < 0$, respectively).

Consider next the sets of points

$$(2.6) \quad \frac{dF}{dt} = \phi(A, F) = 0$$

at which F is not changing. At all points on this curve, since ϕ is zero, the path of the system will be horizontal (either to right or left as $\psi > 0$ or $\psi < 0$, respectively).

At the point, or points, where (2.5) and (2.6) hold simultaneously—that is, where the two curves intersect—the system will be in stable or unstable equilibrium. The equilibrium will be stable if any path very close to the point of equilibrium leads toward it and unstable if any path very close to it leads away from it. (This definition of stability can be shown to be equivalent to a suitable generalization of the analytic definition we employed in the linear case.) Figure 2 illustrates the direction field and the curves $\psi=0$ and $\phi=0$. There are two points of equilibrium, K and L. Equilibrium at K is stable, at L unstable.

It should be remarked that if the system starts off at any point *above* the lower of the two broken lines in the figure, it will, in time, approach the point of stable equilibrium, K; while if the system starts off below this broken line, F and A will ultimately decline and approach the point M—the group will, in fact, dissolve.

Now the paths taken by the system from various initial points will depend on the locations of the curves $\psi=0$ and $\phi=0$, and their points of intersection. The particular shapes and positions of the curves, as drawn in Figure 2, represent empirical assumptions as to the shapes of the functions ψ and ϕ . What can we legitimately assume about these functions? To answer this question we must ascertain the empirical significance of the two curves $\psi=0$ and $\phi=0$.

Equation (3.3) says, in effect, that for a given amount of external pressure (a given value of E) the amount of activity under-

taken by the group (A) will tend to adjust itself to the level of friendliness (F). Our empirical assumption is that, given E, greater friendliness will tend to produce greater activity. If this is so, then the equilibrium value of A must increase as F increases; that is, the curve $\psi=0$ must have a positive slope. We now make the second empirical assumption: that there is a saturation phenomenon—that as F continues to increase, A will increase only at a diminishing rate. If this is so, the curve $\psi=0$ must be concave upward as we have drawn it. In the particular case illustrated in Figure 2, it is assumed that E is sufficiently great so that there will be some activity even in the absence of friendliness. This is represented by the fact that the curve cuts the x-axis to the right of the origin. Later, we will consider the case also where this condition does not hold.

Equation (2.4) says that the amount of friendliness in the group (F) will tend to adjust itself to the amount of group activity (A). Again we assume that greater activity will tend to produce greater friendliness; hence that the curve $\phi=0$ must have a positive slope. If we now assume that this mechanism is also subject to saturation, the curve must be concave downward. Finally, we assume that unless the activity is above a certain minimum value there is no tendency at all for friendliness to develop ($\phi=0$ cuts the x-axis to the right of the origin).

In the particular case shown, $\phi=0$ cuts the x-axis to the right of $\psi=0$. If this were not so, the point L would disappear and the system would move toward the stable equilibrium, K, from *any* initial point, including the origin. We will consider this case later. In the particular case shown, $\psi=0$ is sufficiently far to the right that it intersects $\phi=0$. If this were not so, the system would move toward the origin from *any* initial point. This case also will be considered later.

Finally, it should be mentioned that the particular assumptions we have made about the curves do not depend in any essential way upon the precise indexes used to measure F and A. For any given scale used to measure F or A, we can substitute another scale, provided only that the second scale has the same zero point as the first and does not

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reverse the *direction* of change (i.e., that we do not have $F_1 > F_2$ on the first scale but $F'_1 < F'_2$ for corresponding situations measured on the second). To be more precise, our concavity properties may be altered but not the order or character of the equilibrium points or the presence or absence of the region below the lower broken line. Since the conclusions we shall draw depend only on these properties of the graph, a change in the index employed cannot affect our results.

Suppose now that we begin with the system in equilibrium at K, and progressively reduce E, the external pressure to activity. A reduction in E may be assumed empirically to reduce (through the mechanism of equation (2.3)) the equilibrium value of A associated with each value of F—i.e., to move the curve $\psi=0$ to the left. In the simplest case (in first approximation) we may assume that the shape of the curve is unchanged. Then, as $\psi=0$ moves to the left, its intersection, K, with $\phi=0$ will move downward and to the left along $\phi=0$. We have shown:

Proposition 2.1. As E is decreased the equilibrium levels of A and F will be decreased.

This proposition also held in our linear system.

As $\psi=0$ continues to move to the left (continued reduction in E) the two curves will eventually intersect at a single point of tangency. Let us call the value of E corresponding to this position of tangency E_T . As E is reduced below E_T , the two curves will no longer intersect and all paths of the direction field will lead to the x-axis and, if $\psi=0$ now intersects with the y-axis, the system will come to rest at the origin. We have shown:

Proposition 2.2. As E is decreased below some critical value, E_T , F will go to zero; and for some sufficiently small value of E (equal to or less than E_T depending on the location of the intersection of $\psi(A, F; E_T)$ with the x-axis) A will go to zero.

Here we find, in the non-linear case, a new phenomenon—a dissolution of the group. It might be supposed that if a group has been dissolved by reducing E below E_T it can be restored by again increasing E to E_T . This does not follow. For if the system is initially at the origin, its path will lead

toward K only if $\psi=0$ intersects the x-axis to the right of $\phi=0$. But the smallest value of E for which this condition holds is obviously greater than E_T . From this follows:

Proposition 2.3. The level of E required to bring a group into existence is greater than the minimum value, E_T , required to prevent the group, once formed, from dissolution.

To illustrate Proposition 2.3 we show, in Figure 3, the path that will be followed by F and A when E is (1) reduced from some initial value, E_K , to E_T , (2) then to some lower value, E_L , (3) then increased to E_0 , where $\psi=0$ intersects the origin, (4) finally increased to E_M where $\psi=0$ intersects the x-axis just to the right of $\phi=0$. In the descending portion of the path, the decrease in F lags behind the decrease in A; while in the ascending portion of the path the increase in F again lags behind the increase in A. Hence the whole path forms a loop in the counter-clockwise direction in the (A, F)-plane.

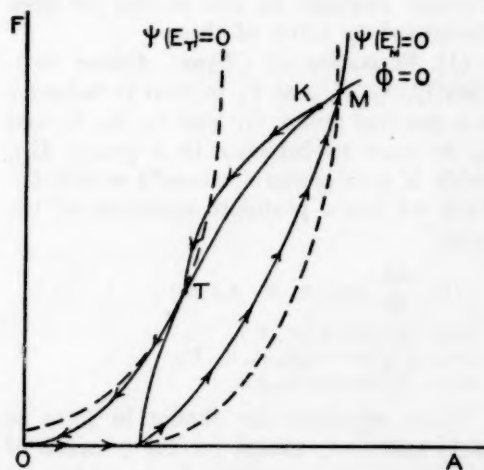


FIG. 3

Notice also that the system remains at rest at the origin so long as E is below E_0 and that A increases, but not F, as E increases from E_0 to E_M .

In the linear model we studied the effects upon the equilibrium values of A and F of certain shifts in the parameters, a_1 , a_2 , γ , and β of the system. With E fixed, an increase in interdependence of tasks (increase in a_1 and a_2), an increase in congeniality (decrease in β) and an increase in spontaneity (decrease in γ), within the limits

imposed by the stability conditions, all resulted in an increase in the equilibrium values of A and F .

In the non-linear model an increase in interdependence of tasks or an increase in congeniality would be represented by a shift upward of the curve $\phi=0$; an increase in spontaneity would be represented by a clockwise rotation of the curve $\psi=0$ about its intersection with the x -axis. In all cases, if we began from a position of equilibrium, the new equilibrium values of A and F would be larger than the initial values.

SOME APPLICATIONS OF THE MODEL

While the model described here was suggested by Homans' analysis of behavior in *The Human Group*, we have attempted to present only part of his system: in particular we have omitted reference to phenomena of hostility, and to interpersonal differentiation (kinship and leadership). On the other hand, the mathematical model is capable of application to some situations that lie outside Homans' analysis. In this section we shall discuss briefly a few of these.

(1) *Formation of Cliques.* Define variables I_1 , A_1 , F_1 , and E_1 to refer to behavior in a specified group, G_I ; and I_2 , A_2 , F_2 and E_2 to refer to behavior in a group, G_{II} , which is a subgroup ("clique") within G_I . Then we might postulate equations of the form:

$$(3.1) \quad \frac{dA}{dt} = \psi_1(A_1, F_1, A_2; E_1)$$

$$(3.2) \quad dF_1/dt = \Phi_1(A_1, F_1)$$

$$(3.3) \quad dA_2/dt = \psi_2(A_2, F_2, A_1; E_2)$$

$$(3.4) \quad dF_2/dt = \Phi_2(A_2, F_2)$$

These equations are similar in form to (2.3) and (2.4) except for the presence of the "coupling" variables: A_2 in (3.1) and A_1 in (3.3). The meaning of this coupling is that activity within the clique (A_2) is assumed to interfere with and depress activity in the larger group (A_1) and activity within the larger group (A_1) is assumed to interfere with clique activity (A_2). We might also have further complicated the model by adding coupling terms to (3.2) and (3.4) ("conflict of loyalties").

The behavior of the system (3.1) to (3.4) can be studied as follows. We take E_1 and E_2 as fixed. Then for any given value of A_2 , we can set (3.1) and (3.2) equal to

zero and find the corresponding equilibrium value, A_1^* , of A_1 . This value, A_1^* , will depend on A_2 , and, under our assumptions will decrease as A_2 increases. Similarly, from (3.3) and (3.4) we can find the equilibrium value, A_2^* of A_2 for each value of A_1 . A position of equilibrium of the whole system will be found at the intersection of the two curves $A_1^* = A_1^*(A_2)$ and $A_2^* = A_2^*(A_1)$ in the plane whose x -axis represents A_1 and whose y -axis represents A_2 . If the two curves do not intersect, then the clique and the group cannot coexist in equilibrium. Even if the curves intersect, the equilibrium may be unstable, but we cannot here go into the exact conditions of stability.

(2) *Competition of Groups.* Instead of a clique within a group we might have two groups competing for the membership of a single individual. In this case, the variables A_1 , F_1 , I_1 , E_1 would refer to the intensity of his activity in the first group; A_2 , F_2 , I_2 , E_2 to the intensity of his activity in the second group. We can then proceed exactly as in the first case.

(3) *Activity of an Individual.* The variables in equations (2.3) and (2.4) need not be interpreted as group activity. Instead, A might be interpreted as the amount of time per day an individual devotes to any particular activity, F as the amount of satisfaction he obtains from the activity, E as the pressure on him to engage in the activity. In this case we might want to make different assumptions as to the shapes of the curves, $\phi=0$ and $\psi=0$, in the phase diagram than in the previous cases, but the general approach is the same. Similarly the model of equations (3.1)–(3.4) might be interpreted to refer to an individual's distribution of attention between two activities.

(4) *Regulatory Enforcement.* Still another application of models of this general class would be to the phenomena associated with the enforcement of a governmental regulation (e.g., gasoline rationing). Here A would be interpreted as the actual degree of conformity to the regulation, F as the social pressure to conform, E as the effect of formal enforcement activity. The reader may find it of some interest to translate the theorems we have previously derived into this new interpretation.

CONCLUSION

In this paper we have constructed a mathematical model that appears to translate with tolerable accuracy certain propositions asserted by Homans to hold for behavior in human groups. We have examined at some length what assumptions the model requires and what further propositions can be deduced from it. In particular, we have seen that it offers an explanation for some of the commonly observed phenomena relating to the stability and dissolution of groups. In the last section we have shown that models of this general class can be applied to a rather wide range of behavioral phenomena beyond those originally examined.

We do not imply from this that the psychological mechanisms involved in all these situations are identical. The underlying similarity appears to be of a rather different character. In all of these situations there are present: (a) an external (positive or negative) motivational force toward some activity, and (b) a secondary "internal" motivational force induced by the activity itself. It is the combined effect of two such motivational forces that produces in each case phenomena of the sort we have observed. And especially when the relations are not linear (and the non-linear must be supposed to be the general case), "persistent" and "gregarious" patterns of behavior can result.

NOTES ON RESEARCH AND TEACHING



REVIEW OF CURRENT RESEARCH IN DEMOGRAPHY AND HUMAN ECOLOGY*

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Reports on research projects in demography and human ecology during 1950 and the first half of 1951 indicate a rather high level of productive activity. As in years past research in these fields shows a predominantly empirical and practical orientation. Theoretical inquiry for the most part takes the form of concern with techniques and procedures for analyzing quantitative data.

The most important topics of research, as reflected by studies reported in process during 1950 and early 1951 are: descriptive population surveys, migration and mobility, vital rates, ecological organization, and methods of population estimation. In terms of the kinds of areas selected for study, the most important are, respectively: particular states, particular cities, foreign countries, the United States generally, and particular regions within the United States. A good proportion of the studies involves the use of refined analytical tools, valuable because of the quantitative character of most demographic and ecological data. A majority of the projects were independent investigations and did not comprise parts of larger team projects. In most cases some or all of the data had been collected, though in only a minority of the studies had manuscripts been completed.

The tabulations which follow are based upon 1950 and 1951 returns from the annual census of research conducted by the American Sociological Society and upon a supplementary questionnaire mailed out in May, 1951, the purpose of which was to reach persons who, judging by fields of interest indicated in the *Directory of Members*, might be engaged in demographic or ecological research but who had not returned cards for the annual census of research.¹

* This review is one of a series of reviews, arranged by the Committee on Research of the American Sociological Society, under the chairmanship of Raymond F. Sletto.

¹ Student members of the society were not included in this additional canvass.

Despite the use of the supplementary questionnaire, the tabulations may not be wholly representative of the character of demographic and ecological research currently under way and they certainly do not represent a complete coverage of projects in those fields. Altogether 182 projects have been included in this report, 127 of them having been reported on the special questionnaire, and 41 and 14 of them having been reported, respectively, on the 1950 and 1951 censuses of research.²

Table 1 indicates the distribution of reported projects by topics of research. In some instances classification of projects was somewhat arbitrary, though every effort was exerted to place each one under the heading that seemed most appropriate to it. Altogether there were 131 projects reported in demography and 51 in ecology. Of course a considerable number of projects were both demographic and ecological in character.

The names of the investigators engaged in these projects, by topics of research, are as follows:³

Total Population Description and Trends. A. H. Anderson, Gordon Browder, C. Chandrasekaran, O. D. Duncan, John D. Durand, Harry C. Harmsworth, Rudolf Heberle, Homer L. Hitt, Harold F. Kaufman, Dudley Kirk, John B. Knox, Olen E. Leonard, Monroe Lerner, T. Wilson Longmore, Frank Lorimer, Anders S. Lunde, Fred Massarik, Kurt B. Mayer, C. A. McMahan, Frederick B. Parker, Harald A. Pedersen, Albert J. Reiss, Jr., Harry W. Roberts, Louis Rosenberg, C. A. Ross, Robert C. Schmitt, T. Lynn Smith, A. Philip Sundal, Irene B. Taeuber, Gus Turbeville, Joseph S. Vandiver, Ray E. Wakeley, P. K. Whelpton, Vincent H. Whitney.

Demography of Underdeveloped Areas. George W. Barclay, C. Chandrasekaran, Robert C. Jones, Dudley Kirk, C. J. Martin, Stephen W. Reed, N. L. J. Van Buttingha Wickers, P. K. Whelpton.

Rural Urban Changes in U. S. as Whole. Vincent H. Whitney.

Labor Force. Wilbert E. Moore.

Migration and Mobility. L. L. Arey, J. Allan

² Altogether 69 census reports were available, of which 14 were duplicated by the questionnaire reports and were hence eliminated from the tabulations.

³ In those cases where a person has several projects falling under the same topic, his name has been listed only once. Where the project is a collaborative one, all persons connected with it have been listed.

TABLE 1. NUMBER OF RESEARCH PROJECTS IN DEMOGRAPHY AND ECOLOGY REPORTED IN 1950 AND 1951, GROUPED BY TOPICS

Topics	Number of Projects
POPULATION AGGREGATES AND SECULAR TRENDS	
Total population description and trends of a geographic area, country, or group	34
Demography of underdeveloped areas	7
Rural-urban changes in U. S. as whole	1
Labor force	1
POPULATION DYNAMICS	
Migration and mobility	33
Vital rates	31
Age and sex composition and ratios	6
Population correlates of farm mechanization	4
POPULATION THEORY	
General demographic theory	1
Population forecasting techniques, population estimates, life table construction	11
Criteria of population equilibrium	2
ECOLOGICAL THEORY	
General	1
Theory and technique of areas and subregions	1
ECOLOGICAL AGGREGATES	
Metropolitan decentralization; urban fringes	9
Urbanization as a process	10
Central business district	1
Industrial location	2
ECOLOGICAL ORGANIZATION	
General	13
Ecology of social problems	6
Locality groups	3
MISCELLANEOUS	5
TOTAL	182

Beegle, D. J. Bogue, Joe M. Bohlen, Edmund de S. Brunner, E. L. Deming, Robert G. Burnight, Robert H. Fermm, William Form, John Folger, Ronald Freedman, Margaret J. Hagood, Philip M. Hauser, Robert J. Havighurst, Amos H. Hawley, Lawrence M. Hepple, Paul M. Houser, Elmer H. Johnson, Robert C. Jones, Dudley Kirk, Evelyn M. Kitagawa, Max Lacroix, C. E. Lively, Marian McLaughlin, J. W. Nixon, Sigmund Nosow, Chia-lui Pan, P. K. Peter, Daniel O. Price, Albert J. Reiss, Jr., Carl M. Rosenquist, Calvin F. Schmid, M. J. Griswold, Warren S. Thompson, Ray E. Wakeley, P. K. Whelpton.

Vital Rates. Odin W. Anderson, Wendell H. Bash, J. N. Burrus, Otis D. Duncan, John D. Durand, Clinton Folse, Ronald Freedman, C. J. Gamble, Philip M. Hauser, Homer L. Hitt, G. E. Hobbs, A. B. Hollingshead, Jack Kantner, Clyde V. Kiser, Evelyn M. Kitagawa, Olen E. Leonard, Sister Mary Liguori, D. G. Marshall, Albert J. Mayer, Jr.,

Wilbert E. Moore, Henry M. Muller, Samuel C. Newman, F. O. Parr, Albert J. Reiss, Jr., Ruth Riemer, F. C. Redlich, Norman B. Ryder, C. F. Westoff, Charles Wilner, P. K. Whelpton, V. Valaras, A. Constantine Yeracaris, Joseph S. Vandiver.

Age and Sex. Rollin Chambliss, J. W. Grauman, Joseph H. Greenberg, Robert H. Dann, C. A. McMahan, L. E. Truesdell, P. K. Whelpton.

Population Correlates of Farm Mechanization. O. D. Duncan, Harold F. Kaufman, Robert T. McMillan, Harald A. Pedersen.

General Demographic Theory. Nathaniel R. Kidder.

Population Forecasting Techniques. J. Allan Beegle, Abbott L. Ferriss, J. V. Grauman, Margaret J. Hagood, Homer L. Hitt, Nathaniel R. Kidder, C. A. McMahan, Roland J. Pellegrin, Paul H. Price, Georges Sabagh, Calvin F. Schmid, P. K. Whelpton.

Current Population Estimates. C. F. Schmid.

Criteria of Population Equilibrium. Ernest E. Neal, Alvin H. Scaff.

General Ecological Theory. Warner E. Gettys.

Theory and Technique of Areas, and Subregions. D. J. Bogue.

Metropolitan Decentralization. J. Allan Beegle, Amos H. Hawley, Gerald Breese, Noel P. Gist, Walter T. Martin, Samuel Pratt, Albert J. Reiss, Jr., Alvin H. Scaff.

Urbanization as a Process. David B. Carpenter, Kingsley Davis, N. J. Demerath, Carl Hammer, Abbott L. Ferriss, Hilda Hertz, A. J. Jaffe, Samuel Pratt, Natalie Rogoff, Rupert B. Vance.

Central Business District. Gerald Breese.

Industrial Location. Gerald Breese, Walter Isard, Vincent H. Whitney.

Ecological Organization in General. Leonard Z. Breen, David B. Carpenter, Owen B. Durgin, E. Gordon Ericksen, Paul M. Houser, Albert J. Reiss, Jr., Peter H. Rossi, E. F. Schietinger, Calvin F. Schmid, Paul M. Sears, Evon Z. Vogt, Rupert B. Vance, Everett K. Wilson, Louis Wirth.

Ecology of Social Problems. J. Allan Beegle, Floyd A. Bond, J. C. Belcher, O. D. Duncan, A. B. Hollingshead, Jerome K. Myers, F. C. Redlich, Calvin F. Schmid, Alvin H. Scaff, John F. Thaden.

Locality Groups. O. D. Duncan, Philip M. Hauser, Selz C. Mayo, Albert J. Reiss, Jr., James D. Tarver.

In Table 2 the reported projects have been grouped by geographical units. This arrangement brings out the predominance which American cities and states occupy as units for demographic and ecological research. At the same time the table suggests a vigorous interest in comparative demographic and ecological research, there being 40 projects that deal with areas outside the United States. The names of those engaged in these projects, grouped by types of area, are:

United States Generally. D. J. Bogue, David B. Carpenter, Robert H. Dann, Edward L. Deming, Jr., Robert H. Fermm, Margaret J. Hagood, Amos H. Hawley, Elmer H. Johnson, C. A. McMahan, Robert T. McMillan, Harald A. Pedersen, Daniel

TABLE 2. NUMBER OF RESEARCH PROJECTS IN DEMOGRAPHY AND ECOLOGY REPORTED IN 1950 AND 1951, GROUPED BY TYPES OF AREA

Types of Area	Number of Projects
The United States generally	16
A region or subregion within U. S.	15
A state	37
A city or metropolitan area	27
Locality groups and neighborhoods	3
Cities in U. S. or region generally	7
A particular group diffusely in the U. S.	6
A particular group in a particular city	3
World wide	17
Underdeveloped areas abroad, generally	2
Europe	5
Asia and the Pacific area	6
Latin America	7
Africa	2
Antiquity	1
Not contingent upon type of area	24
Miscellaneous	4
TOTAL	182

O. Price, Rupert B. Vance, Joseph S. Vandiver, Vincent H. Whitney.

A Region or Subregion within U. S. J. Allan Beegle, D. J. Bogue, R. G. Burnight, N. J. Demerath, Abbott L. Ferriss, John Folger, William Form, Margaret J. Hagood, Harold F. Kaufman, Olen E. Leonard, Ernest E. Neal, Sigmund Nosow, Harald A. Pedersen, Daniel O. Price, Paul M. Sears, Joseph S. Vandiver, Evon Z. Vogt, Rupert B. Vance.

A State. A. H. Anderson, L. L. Arey, Wendell H. Bash, F. A. Bond, Gordon Browder, Edmund deS. Brunner, John N. Burrus, J. Allan Beegle, Joe M. Bohlen, J. C. Belcher, O. D. Duncan, Otis Dudley Duncan, Ronald Freedman, Margaret J. Hagood, Harry C. Harmsworth, Clinton Folse, Amos H. Hawley, Lawrence M. Hepple, Harry C. Harmsworth, Rudolf Heberle, Homer L. Hitt, John B. Knox, Harold F. Kaufman, T. Wilson Longmore, C. E. Lively, D. G. Marshall, C. A. McMahan, Roland J. Pellegrin, Paul H. Price, Frederick B. Parker, Harald A. Pedersen, Carl M. Rosenquist, Harry W. Roberts, Alvan H. Scaff, John F. Thaden, Warren S. Thompson, T. Lynn Smith, Ray E. Wakeley.

A City or Metropolitan Area. Odin W. Anderson, J. Allan Beegle, Leonard Z. Breen, Gerald Breese, David B. Carpenter, Owen B. Durgin, Noel P. Gist, Philip M. Hauser, Amos H. Hawley, A. B. Hollingshead, Evelyn R. Kitagawa, Walter T. Martin, Albert J. Mayer, Jr., C. A. McMahan, Jerome H. Myers, Samuel Pratt, F. C. Redlich, Albert J. Reiss, Jr., Charles A. Ross, Alvin H. Scaff, E. Frederick Schietinger, Calvin F. Schmid, Robert C. Schmitt, A. Philip Sundal, Everett K. Wilson, Louis Wirth.

Locality Groups and Neighborhoods. O. D. Duncan, Philip M. Hauser, Selz C. Mayo, Albert J. Reiss, Jr., James D. Tarver.

Cities in U. S. or Region Generally. Donald J. Bogue, Gerald Breese, Kingsley Davis, E. Gordon Ericksen, Donald Foley, Philip M. Hauser, Amos H. Hawley, Samuel Pratt, A. Constantine Yeracaris, Albert J. Reiss, Jr., Evelyn Kitagawa.

A Particular Group Diffusely in U. S. Dudley Kirk, Clarence J. Gamble, Sister Mary Liguori, F. O. Parr, Louis Rosenberg, Calvin F. Schmid.

A Particular Group in a Particular City. Robert J. Havighurst, Fred Massarik, Marian McLaughlin, Gus Turbeville.

World Wide. Kingsley Davis, John D. Durand, Carl Hammer, Hilda Hertz, A. J. Jaffe, Max Lacroix, J. W. Grauman, J. W. Nixon, Peter P. Klassen, Wilbert E. Moore, N. Rogoff, Alfred Sauvy, Paul Vincent, P. K. Whelpton, L. E. Truesdell.

Underdeveloped Areas Abroad Generally. Dudley Kirk, Stephen W. Reed.

Europe. Dudley Kirk, Max Lacroix, Frank Lorimer, Anders S. Lunde, Kurt B. Mayer, P. K. Whelpton.

Asia and the Pacific Area. George W. Barclay, C. Chandrasekaran, Nathaniel R. Kidder, Max Lacroix, Chia-lui Pan, Irene B. Taeuber, P. K. Whelpton.

Latin America. Robert C. Jones, Olen E. Leonard, Monroe Lerner, Roy C. Mitchell, Jr., Wilbert E. Moore, T. Lynn Smith.

Africa. C. J. Martin, N. L. J. Van Buttingha Wickers, P. K. Whelpton.

Antiquity. S. C. Gilfillan.

Of the 182 reported projects in demography and ecology, 92 were being supported, in part at least, by a research grant; 79 were not being supported by a grant; and 11 were insufficiently identified on this point. Financial support ranged from specific grants for particular studies to continuing broad support for long-term projects. Most of the studies—104 in number—were being individually conducted, though 73 studies were parts of larger team projects; 5 were not sufficiently characterized on this point. Regarding the progress of projects, in 39 of the 182 reported studies manuscripts had already been completed. In another 69 of them manuscripts were partially completed. Data had been collected for 101 of the 182 reported projects and had been partially collected for another 66 of the reported projects.

Research of a fundamental character was being carried on in governmental agencies, academic institutions, and private foundations. A tabulation of projects according to the type of sponsoring agency or institution (not necessarily indicative of financial support) shows the following: United Nations, 20 projects; federal bureaus and agencies, 10 projects; research units within colleges and universities (e.g., Office of Population Research, Princeton University; Institute for Research in Social Science, University of North Carolina; Scripps Foundation, Miami University; etc.), 36 proj-

ects; agricultural experiment stations at land-grant colleges, 13 projects; colleges and universities (insofar as not included in the foregoing), 52 projects; foundations and public or private research organizations (e.g., Milbank Memorial Fund, Indiana Economic Council, Carnegie Foundation, Chicago Community Inventory, etc.), 30 projects; and others, 21 projects.

These findings indicate the strong position which demography and ecology occupy in the interests of individual research sociologists and in the regard of agencies and institutions concerned with social research.

THE EFFECT OF COMMUTING ON PARTICIPATION IN COMMUNITY ORGANIZATIONS *

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The suburban communities, sometimes referred to as bedroom towns, are the fastest growing communities in the nation.¹ One of the clearest demonstrations of this community development is to be seen in the Los Angeles Metropolitan area. Between 1940 and 1950 Los Angeles City increased its population by 31 per cent; during the same period of time the Metropolitan area increased its population by 50 per cent.² Out of 40 incorporated cities in Los Angeles County other than Los Angeles itself only eight had rates of growth equal to or less than that of the central city. The seven cities in Pomona Valley at the eastern edge of the county showed a rate of growth of 65 per cent between 1940 and 1950. One of these communities, West Covina, had increased by 320 per cent; the city of Pomona showed a 49 per cent gain. Claremont, a town of 6,212 in the Pomona Valley with an increased population of 103 per cent since 1940, was selected for the present study.³ Approximately half the gain for Claremont is attributed to the fact that in 1950 for the first time the

Census enumerated students present in Claremont rather than reporting them as living in their home communities. If this student group (those living on campus in college dormitories) is omitted, as is actually done in the present study, the population gain for Claremont is approximately the same as the average for all the outlying communities in the Metropolitan District.

Although Claremont is typical of the Los Angeles Metropolitan area in terms of rate of population increase and perhaps in terms of its commuting pattern, it probably is not typical in many other regards. Claremont has four colleges, maintains three retirement centers, enjoys a "cultural" atmosphere, and prides itself upon its New England heritage. Using this community as the area of investigation, an attempt was made to measure the effects of commuting on participation in organized groups.

The research problem may be stated in the form of four questions:

1. To what extent is Claremont becoming a commuter town?
2. What are some of the differences between the commuter and the non-commuter groups?
3. Is participation in community organizations affected by commuting?
4. What is the effect of factors other than commuting upon community participation?

SOURCE OF DATA AND NATURE OF SAMPLE

The data were gathered in personal interviews and recorded by the interviewer on schedules, from which tabulations were made.⁴ The data represent a sampling of the Claremont community according to an adaptation of the Bureau of Census area sampling procedure.⁵

⁴ All of the interviewing and much of the tabulation were done by a class of sociology students at Pomona College. The schedules were completed during the month of April, 1951.

⁵ The following sources are helpful in describing the steps necessary in constructing this type of sample design:

Morris H. Hansen and William N. Hurwitz, "A New Sample of the Population," reprinted by the Bureau of the Census from *Estadística*.

Morris H. Hansen and William N. Hurwitz, "On the Theory of Sampling from Finite Populations," *The Annals of Mathematical Statistics*, Vol. XIV, No. 4, December, 1943.

Listing Manual for Population and Labor Force Surveys, Population Division, Department of Commerce, January, 1947.

District Supervisors' Manual of Sampling Instructions, Current Population Survey Sample M2, Population Division, Department of Commerce, July, 1947.

A Chapter in Population Sampling, Sampling Staff, Bureau of the Census, 1949.

* Paper delivered at the annual meeting of the American Sociological Society held in Chicago, September 5-7, 1951.

¹ *Community Service News*, January-February, 1951, p. 21. Report based on preliminary figures from the 1950 United States Census.

² *1950 Census of Population. Preliminary Reports*. Series PC-5, No. 25, p. 9. The Standard Metropolitan area is composed of Los Angeles and Orange Counties.

³ Figures based on a release from the Los Angeles Office of the Census Bureau and published in the *Progress Bulletin*, Pomona, June 15, 1950, p. 1.

The sampling, which might be described as stratified area sampling, involved locating every household in the natural community on a map, then outlining blocks or combinations of blocks throughout the area of the community so that each block-unit contained approximately the same number of households. The block-units were then consecutively numbered from 1 to 105, listing those of similar ethnic composition, rental value, age of inhabitants, and distance from the center of the community—thus maximizing the probability of including in the sample proportionate representatives of all strata and areas within the community. One block out of every five was then chosen at random and the schedule administered to every other household in the sample blocks.⁶ The sample is therefore approximately ten per cent of the total population. This was a larger sample than necessary to obtain a reliable percentage of commuters in the working force; but with the larger sample we were able to secure reliable data on such subjects as education, length of residence, and occupational status in relation to commuter and non-commuter groups.

DEFINITIONS AND PROCEDURE

The unit of investigation was the small family group composed of the income receiver and his dependents, if any, living with him. Thus, husband, wife, and dependent children under 21 years of age were included on one schedule. Other adults, even if they lived in the same dwelling place, were listed on a separate schedule. Limiting the information on each schedule to the small family unit was necessary in securing a clear picture of the influence of commuting on the participation of families where the chief breadwinner was a commuter.

Organized groups included any group with regular meetings and some regular membership whether official or informal; such as, church services, parent-faculty associations, or bridge clubs. One credit toward a participation score was given for membership in each group. A person holding an elected or appointed office that carried with it special responsibilities was given two units credit toward his participation score.

In the course of each interview, the informant was asked to name the groups to which each member of the family belonged, indicating any in which an appointive or elective office was

held. He was then supplied with a master list of all the organized groups in the community to be sure that he had not overlooked some affiliations. With this information each individual could be assigned a participation score simply by adding his organizations and any offices that he held. In comparing individuals this score was sufficient, but in comparing families the total family scores had to be corrected for family size.

The corrected family participation score was obtained by dividing the total score on each schedule by the total number of adults plus four-tenths for each child between the ages of three and nineteen. The value of four-tenths was arrived at by calculating the average participation score for each age in the entire sample. It was discovered that children under three had no participation in organized groups; therefore they were omitted from consideration. Children between three and nineteen participated in only four-tenths as many organized groups as did the average adult over age nineteen.

FINDINGS

The schedules were classified into four groups according to the employment status of the chief breadwinner. The commuter group was composed of families whose chief breadwinner held a job outside of the community. The retired group included all persons who had completed their period of gainful employment and did not expect to enter the labor force again. A third group was made up of families whose chief breadwinner was employed in Claremont. Finally, the unemployed were those temporarily out of work but who expected to return to work when a suitable job was found. The retired group, those employed in Claremont, and the unemployed, together composed the non-commuter population. See summary comparison in Table 1.

Forty-six per cent of the working force in Claremont travel to jobs outside of the community. The families in this group, the commuter families, compose 30 per cent of all the families in Claremont. The largest single group of families, 35 per cent of the total, were those where the chief breadwinner was retired. Families with employment in Claremont total 32 per cent of the total family population. Only 3.5 per cent of the family heads were unemployed.⁷

The highest participation in organized groups in Claremont was achieved by the retired group with a corrected average family participation

⁶ It will be noted that this procedure outlines a two-stage unrestricted area sample, or a sample in which there are two randomizations. An illustration of such a sample and a test for variance may be found in Robert Ferber, *Statistical Techniques in Market Research*, New York: McGraw-Hill Book Company, 1949, pp. 142-144.

⁷ Because this group was small, and because we had no special interest in the unemployed, no further analysis of this group is presented.

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score of 2.4. The lowest participation score (1.7) was made by the commuter families. Families whose chief breadwinner was employed in Claremont made an average score of 2.2, which means that they participated in community activities 29 per cent more than did the members of commuter families. If the comparison is made between the breadwinners employed in Claremont and those employed outside of the community, the participation score for those working within the community was 1.9 compared with a score of 1.2 for the commuting breadwinners. Therefore, whether the comparison is between individuals employed or between the families of commuter and non-commuter groups, commuting is associated with low participation in organized groups.

who had lived in the community less than three years was .9; for those who had lived in the community three years but less than five years the score was 1.4; and for the group with 20 years or more residence in the community the participation score was 2.9. This means that the long-time resident participated in more than twice as many community organizations as did the newcomer.

The participation of the commuter is affected by the distance he must travel to his place of employment. Those traveling a distance of fewer than 17 miles from Claremont had an average participation score of 1.3; but beyond that distance the community participation was insignificant, the average score being .5. Place of work outside of Claremont for the com-

TABLE 1. COMPARISON BETWEEN COMMUTER AND NON-COMMUTER FAMILIES, CLAREMONT, CALIFORNIA, 1951

	Per Cent of All Families	Average Length of Residence in Years	Average Family Size	Average Age of Bread- winner	Average Number School Years Com- pleted	Per Cent Families with Partici- pation Score of 0	Partici- pation Score of Bread- winner	Partici- pation Score for Families Corrected for Family Size
Commuters	29.7	7.6	3.4	38.4	14.0	31.3	1.2	1.7
Non-Commuters	70.3	13.0	1.9	55.5	13.7	19.3	2.1	2.3
Non-Commuters in Working Force	31.6	12.8	2.8	44.4	12.8	26.8	1.9	2.2
Non-Commuters Retired	35.1	13.1	1.5	72.1	13.8	12.7	2.4	2.4

Approximately 27 per cent of all the families in the community belonged to no organized groups. Among the non-commuters 19 per cent had zero participation scores, while 31 per cent of the commuting families failed to register a single affiliation with an organized group.

An analysis of the figures on length of residence indicates that Claremont is increasingly becoming a commuter town. While the percentage of commuter families in the whole community is 30, the percentage of commuter families among those who have lived in Claremont fewer than five years is 42.7, and the corresponding figure for families living in the community fewer than three years is 43.4 per cent. An increasing percentage of the newcomers consists of commuters. The average length of residence for the commuters is 7.6 years and for the non-commuters 13.0 years. The average commuter family has resided in Claremont only slightly more than half as long as the average non-commuter family. Length of residence has an important bearing on community participation. The average participation score for those

muting group varied from nearby Pomona, to Los Angeles 40 miles away, and to some distant points 60 miles or more from Claremont.

A map showing the direction and the size of this flow of traffic indicated wide diversity in the place of employment of the commuter, and graphically demonstrated that the commuter is not principally attracted from the suburban town to the central city of the metropolitan area.

The commuting population adds young families and comparatively larger families to this community. The average age of the adult commuter is 38 years; of the adult non-commuter, 55 years. The average size of commuter families is 3.4; of non-commuter families, 1.9. Omitting the retired group from the non-commuters, the average family size is still only 2.6. Without question the presence of the commuter group in the community introduces younger adults and children and helps to balance an age distribution that is otherwise heavily weighted by elderly people.

Educational status was measured by the aver-

age number of school years completed by husband and wife. The average score of the commuter group was slightly higher (14.0) than that of the non-commuter adults (13.7). The difference is greater if the comparison is limited to those gainfully employed in Claremont. For this group, the educational score was 12.8. The addition of retired persons with high educational achievement raised the average for the non-commuter population.

An analysis of the relationship between education and community participation proved interesting. Persons who had not completed high school participated least in community organizations; those with college education made the highest scores. Participation increased without exception for each year of schooling completed from the eighth grade through the second year of graduate work beyond college. An analysis of the figures in Table 2 indicates a relatively good participation score for those with less than eighth grade education. The explanation for this variation lies in the participation of Mexican-American families in the Catholic Church and in their own ethnic organizations. At the upper end of the educational scale those with a third year of graduate schooling made a lower participation score than those with one or two years of graduate work; however, the high participation score for those with more than three years of graduate schooling would suggest that additional schooling beyond college is related to increased participation in community organizations.

There was no consistent increase or decrease in community participation according to family

TABLE 2. EDUCATIONAL ACHIEVEMENT AND COMMUNITY PARTICIPATION, CLAREMONT, CALIFORNIA, 1951

Average Number of School Years Completed for Husband and Wife	Average Family Participation Score Corrected for Family Size
0-7*	1.38
8	.71
9	.82
10	1.00
11	1.25
12	1.53
13	1.96
14	2.04
15	2.82
16	2.92
17	2.94
18	3.67
19	2.84
20-25*	3.77

* Grouping necessary in order to avoid the danger of distortion in a small number of cases.

size. Families of single individuals had a higher participation than families of two and three individuals. Families of four individuals had the highest participation score of any size family, and families of five or more persons participated more than the families of two and three persons but not as much as families of one individual.

TABLE 3. COMMUNITY PARTICIPATION AND FAMILY SIZE, CLAREMONT, CALIFORNIA, 1951

Family Size	Average Participation Score Corrected for Family Size
1	2.30
2	1.46
3	1.85
4	2.35
5 and over	2.2

On the assumption that participation in organized groups in the community might be affected by the age distribution of children in the family, or the presence or absence of children, all families in the sample were classified and ranked according to dependency. This classification and the corresponding average family participation scores are presented in Table 4. Unfortunately the number of families in many of the categories was too small to yield statistically reliable averages; therefore the lack of correlation between dependency and community participation may be more apparent than real.⁸

A division of the working force of Claremont into occupational groups indicated some significant differences in the occupational composition of the commuter and non-commuter groups. The largest proportion of the non-commuters was found in professional service (31.4 per cent) and in agriculture (23.9 per cent). Commuters were employed largely in industry (36.9 per cent) and in professional service (30.8 per cent). The most significant comparison between the two groups was the different proportion of each employed in industry: 36.9 per cent of the commuters were employed in industry as compared with 13.4 per cent of non-commuters. As Claremont grows, the proportion of its population in the commuter group will increase, the size of the industrial group will therefore increase, and the occupational composition of the community as a whole will be altered by this increase in industrial employees.

Significant variations in participation were observed for different occupational groups. The

⁸ Rank correlation based on the data in Table 4 gave a coefficient of .26.

TABLE 4. FAMILY COMPOSITION AND COMMUNITY PARTICIPATION, CLAREMONT, CALIFORNIA, 1951

Families Classified by Age Distribution of Children and Ranked According to Dependency	Number in Sample	Average Participation Score Corrected for Family Size
1. Single parent with any dependent children under ten years of age.....	3	1.98
2. Single parent with all dependent children ten years and over	5	2.51
3. a*	10	1.00
4. a, b	6	.28
5. a, b, c	2	2.10
6. a, c	3	2.16
7. b, c	8	2.11
8. a, b, d	0	....
9. a, c, d	0	....
10. a, b, c, d	1	.75
11. b	5	.82
12. c	8	.94
13. a, d	3	4.37
14. b, c, d	0	....
15. b, d	1	4.28
16. c, d	9	1.65
17. d	27	3.32
18. Husband and wife only.....	62	1.46
19. Single individual	71	2.28

* Key to classifications 3-17: Husband and wife and
 a. Children under 3 years.
 b. Children 3-4 years.
 c. Children 5-9 years.
 d. Children 10-20 years.

lowest score (.9) was made by employees in industry and the highest score by those in professional service (2.8) and in public service (4.5).

If the future commuter population of Claremont becomes increasingly industrial, as is likely, the participation of the commuter group, already low, will probably become still lower.

TABLE 5. OCCUPATIONAL STATUS AND COMMUNITY PARTICIPATION, CLAREMONT, CALIFORNIA, 1951

Occupation	Per Cent	Average Participation Score Employed Individuals
All Occupations	100.0	1.6
Agriculture	14.3	1.7
Industry and Construction	24.8	.9
Commerce	13.6	1.0
Clerical Service	8.4	1.5
Professional Service	25.3	2.8
Public Service	3.9	4.5*
Domestic Aid		
Personal Service	9.7	.5

* The number of cases in terms of which this average was made is too small for the statistic to be interpreted as more than an indication of a high degree of community participation for this occupational group.

IMPLICATIONS

1. The suburban town is a community with an increasing commuter population. A significant proportion of the young adult male population commutes to outside jobs. The commuters do not work exclusively in the central city but scatter to their places of employment in many directions within the metropolitan area. Only four per cent of the commuters from Claremont, for example, work in Los Angeles.

2. Whatever community interest the commuter expresses is likely to be divided between his place of residence and his place of work. This often complicates the task of the Community Chest and other agencies dependent upon private, volunteer, local support.

3. Usually the commuter participates very little in community affairs. Thus, the organizations of the community are largely left in the hands of elderly retired people or women.

4. The presence of a large group of commuters does help to balance the age groups in the population, but with the additional child population the tax burden for providing ade-

quate schooling and the pressure for park space are increased.

5. Without any conscious effort to be exclusive, the organizations in the community are highly selective of the educated and professional groups. Education and membership in a profession become a badge of acceptance. High participation scores are thus made by these groups; the lowest participation scores, by the poorer educated and the employees in industry. If the community wishes to achieve a wider participation in its organized activities, the organizations must become more diversified and must appeal to all the different occupational groups. The commuting process has in fact given Claremont a cosmopolitan population without developing at the same time a cosmopolitan pattern of community organization.

A TELEVISION SCALE AND TELEVISION INDEX *

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The accompanying television scale is a device to secure comparable quantitative results in one relatively new and appealing field of human communication. It is a scale so constructed that it can be responded to by persons of all ages, various educational levels, different occupational types. It is constructed on the basis of criticisms by graduate students who used it in its various stages of development with members of groups having various occupational interests and different educational backgrounds.

Twenty types of television programs were finally selected, all of which receive considerable attention from television viewers and are in process of extensive development. The aim of this study is not to find out what television programs people actually view under their variously delimiting circumstances, but something of perhaps greater significance, namely, how they would react to television programs if they had time and opportunity to view these programs. One aim is to try to find out the degree of interest in or attitude toward various

types of programs. Six degrees of expressions of reactions are provided for, ranging from viewing no programs (0), through viewing a few (1), some (2), many (3), most (4), to all (5). Up to the present the weights for the different reactions have been assigned arbitrarily.

By ascertaining the arithmetic means of a person's reactions to all twenty of the given types of television programs, his Personal Television Index (PTI) is obtained for purposes of comparison with the PTI's of other persons, or of groups of persons to a given program, or of his own reactions at later dates.

By ascertaining the arithmetic means of the reactions of a number of persons to a single television program, a Program Television Index (PrTI) for that particular type of program may be determined for purposes of comparing interest in or attitudes toward different types of television programs as means of communication. Interpretations of both PTI's and PrTI's may be obtained through interview materials, preferably of the non-directive type, from the persons who have filled out the television scale. The interview data and tests still in progress indicate that the television indexes for groups of persons have a satisfactory reliability and validity.

Table 1 gives the Personal Television Indexes for 1,500 persons. The data were obtained partly through former graduate students, most of whom were employed in full-time or part-time work and who had the television scales filled out by employment associates in groups, such as labor unions, church groups, housing project groups, ethnic groups. Public school and university teachers also assisted in having the television scales filled out by third and fourth grade children, high school students, college students, and college graduates. The data came from different areas, such as New York, Pennsylvania, Florida, Illinois, Texas, Washington, California. The data are not presented as yet as coming from a representative sample, although progress is being made toward that goal.

Of the 1,500 individuals who filled out the television scales, 512, or 34.1 per cent, reported that they had no television set or regular access to television programs. A total of 988, or 65.8 per cent, had television sets or regular access to them. Of this number, 248, or 25.1 per cent, had had such access less than one year; 257,

* Paper read at the annual meeting of the American Sociological Society, September 3-5, 1951.

TABLE 1. PTI's ACCORDING TO REGULAR ACCESS TO TELEVISION PROGRAMS (N988)

Less Than 1 Year (N248)	1 Year up to Two Years (N257)	2 Years up to Three Years (N169)	3 Years and Longer (N101)	Not Stated (N213)
1.98+	2.06+	1.86+	2.10+	1.56+

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Comedy
Education
Football
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TABLE 2. PROGRAM TELEVISION INDEXES (N1500)

Baseball	1.81+	Plays, serious	2.61+
Basketball	1.72	Political talks	1.59
Boxing	1.50	Popular song and dance music.....	2.08
Comedy shows	2.56	Puppet shows	1.01
Educational programs	2.54	Religious programs	1.33
Football	3.00	Revived movies	2.22
News reports	2.50	Symphony concerts	2.20
News reels	2.71	Western musicals	1.09
Quiz programs	1.67	Vaudeville and variety shows.....	2.14
Demonstrating goods for sale.....	.65	Wrestling	1.47

or 26.0 per cent, one year or more, but less than two years; 169, or 17.1 per cent, two years or more but less than three years; 101, or 10.2 per cent, three years or more; 213, or 21.5 per cent, could not or did not give length of regular access.

The arithmetic mean of the PTI's of those persons who had no access to television programs was 1.77+, which indicates the high potential interest in or attitude toward television by non-access persons.

Reasons obtained from interviews for lack of access on the part of the non-access persons include (1) no or few nearby broadcasting stations, (2) small percentage of "good programs," (3) high cost of television sets, (4) lack of time, (5) waiting for improvements, color television, etc., (6) lack of "house of my own" for installation of television set.

From Table 1 it will be seen that the PTI's do not change greatly with length of regular access to television programs. The novelty phase of viewing television does not seem to decline with length of regular access. The new television programs that are continually being introduced, the extensions in microwave relay systems, and the technical improvements that are being developed serve to keep the novelty stage active with many television viewers. No end to this novelty stage is in sight, for television is still, apparently, in its early stages of development.

The reactions of 1,500 persons to each of twenty types of television programs, as given in Table 2, afford interesting comparisons. The six highest PrTI's in descending order are: football 3.00; newsreels 2.71; serious plays 2.61; comedy shows 2.56; educational programs 2.54; and news reports 2.50. All exceed 2.00 and are almost in a class by themselves. Football, which stands highest at 3.00, rates more than four times as high as the lowest type—that of demonstrating goods for sale. The high football rating occurred despite the fact that the data were obtained in the spring of the year, the off-season for football.

One of the distinct variations in the reactions to several types of television programs is found when the PTI's are classified according to sexes. As shown in Table 3, the PTI's for males are higher for the following program types: baseball, basketball, boxing, comedy shows, football, news reports, news reels, political talks, puppet shows, vaudeville and variety shows, Western musicals, and wrestling. On the other hand, females rank higher regarding quiz programs, serious plays, popular songs and dance music, revived movies, and symphony concerts. The two sexes score about the same in regard to demonstrating goods for sale, educational programs, and religious programs.

In considering television programs as means

TABLE 3. PERSONAL AND PROGRAM TELEVISION INDEXES BY SEXES (N988)

	Males (N567)	Females (N421)		Males (N567)	Females (N421)
Baseball	2.24+	1.50+	Plays, serious	2.32+	2.93+
Basketball	2.33	1.56	Political talks	1.69	1.49
Boxing	2.21	.98	Popular songs and dance music..	2.09	2.25
Comedy shows	2.67	2.45	Puppet shows .....	.74	.67
Demonstrating goods .....	.68	.65	Religious shows	1.32	1.34
Educational programs	2.73	2.73	Revived movies	2.05	2.35
Football	2.94	2.68	Symphony concerts	2.05	2.27
News reports	2.90	2.50	Vaudeville and variety.....	2.25	2.15
News reels	2.84	2.63	Western musicals .....	.98	.85
Quiz programs	1.53	1.83	Wrestling	1.81	1.17

TABLE 4. PERSONAL TELEVISION INDEXES BY EDUCATIONAL LEVELS (N1500)

a	b	c	d	e	f
3rd and 4th Grades	11th and 12th Grades (HS)	1st and 2nd Yr. College	3rd and 4th Yr. College	Graduate Levels	Not Stated or Included
(N104)	(N132)	(N515)	(N229)	(N297)	(N223)
2.44+	1.92+	1.92+	1.76+	1.72+	1.68+

of communication, therefore, it is important to keep in mind whether they are to be viewed by men or women. This difference in preferences by sex also explains some of the problems which arise in the home with one television set. Another important type of variation in television viewers is represented by different educational levels. A breakdown of reactions according to five educational levels is given in Table 4.

Of the total number of tabulated television scales, 223 either did not give their educational status or were adults who had had grade school or partial high school education. The latter individuals were not included in columns *a* and *b* in Table 4, for these were reserved for children (column *a*) or "teen-agers" (column *b*).

It will be noticed that the highest PTI's occur among the grade school children. They usually make one of only two choices, namely, they would like to see all of a given type of television program or none of it, whereas adults tend to make full use of the six choices afforded

by the television scale. Although Table 4 does not give the data, the highest PrTI's of the third and fourth grade children were as follows: revived movies 3.97, comedy shows 3.96, vaudeville and variety shows 3.59, Western musicals 3.51, wrestling 3.40, and quiz programs 3.10.

Senior high school students and junior college students had similar PTI's, but lower than those of children. Senior college students and the graduate levels also were somewhat similar, but their PTI's were the lowest of the three groups. Examination of the television scales shows that there is in general a gradual decline in the choices of non-educational programs as one moves up the educational ladder. A steady increase in the criticisms of both the fare given by television stations and of the television commercials also appears in the interview materials as the educational status of the viewers increases.

A double breakdown of the television indexes according to both sexes and educational levels gives significant results. In Table 5, the junior

TABLE 5. PROGRAM TELEVISION INDEXES COMPARED ON TWO EDUCATIONAL LEVELS FOR MEN AND FOR WOMEN

	1st and 2nd Yr. Col. Men (N108)	Graduate Level Men (N103)	1st and 2nd Yr. Col. Women (N104)	Graduate Level Women (N84)
Baseball	1.81+	1.77+	1.37+	1.30+
Basketball	2.37	1.96	1.72	1.57
Boxing	2.04	1.41	.72	.66
Comedy shows	2.69	2.01	3.05	1.96
Demonstrating goods for sale.....	.58	.48	.58	.54
Educational programs	2.40	2.83	2.00	3.00
Football	3.72	3.02	3.00	2.45
News reports	2.78	2.87	2.04	2.53
News reels	2.46	3.09	2.41	2.57
Quiz programs	1.24	1.27	1.76	1.49
Plays, serious	2.50	2.53	2.96	2.84
Political talks	1.58	1.71	1.18	1.95
Popular songs and dance music.....	1.89	1.70	2.38	1.66
Puppet shows .....	.47	.97	.67	.84
Religious programs .....	.64	1.08	1.09	1.25
Revived movies	2.14	1.66	2.70	1.84
Symphony concerts	1.81	2.47	1.83	2.71
Vaudeville and variety shows.....	2.23	1.90	2.54	1.65
Western musicals .....	.94	.72	.84	.66
Wrestling	1.51	1.11	.83	.45

college men who are compared with graduate level men and the junior college women who are compared with graduate women are matched in both comparisons according to the subjects in which the respective individuals are "majoring." As a result of the matching, the numbers of scores in each category are necessarily reduced.

Junior college men have higher PTI's than the graduate men in baseball, basketball, boxing, comedy shows, football, popular songs and

an attitude toward television programs serve both educational and commercial purposes. (3) The PTI's and PrTI's indicate where the differences in reactions to television programs occur and how extensive are these differences. (4) They also give comparison values for research purposes. (5) Because of the high PTI's, especially of children and youth, a control of television programs to conform to educational principles is suggested. (6) Television scale measurements need to be repeated from time

TABLE 6. PERSONAL TELEVISION INDEXES BY OCCUPATIONAL ACTIVITIES (N1500)

College Students (N714)	Housewives (N109)	Clerical and Secretarial (N103)	Managerial and Executive (N270)	Professional (N273)	Others or Not Stated (N346)
1.87+	1.66+	2.00+	1.65+	1.59+	.....

dance music, revived movies, vaudeville and variety shows, Western musicals, and wrestling. The graduate men have higher PTI's than the junior college men in educational programs, news reports, news reels, political talks, puppet shows, religious programs, and symphony concerts. Some of the graduate men explain their PTI's for puppet shows (and so do some of the graduate women) by stating that they view these programs along with their children. The PTI's are about the same for both male classifications in regard to demonstrating goods for sale and quiz programs.

Junior college women have higher PTI's than the graduate women in basketball, comedy shows, football, quiz programs, popular songs and dance music, revived movies, vaudeville and variety shows, Western musicals, and wrestling. The graduate women are higher in educational programs, news reports, news reels, political talks, puppet shows, religious programs, and symphony concerts. The PTI's are about the same in baseball, boxing, demonstrating goods for sale, and serious plays.

A classification of PTI's by occupational activities raises interesting questions: for example, housewives explain their low PTI's on the ground that they continue to listen to radio because they can do housework while so listening. Business men and members of the professions report lack of time to view television programs, which means that the demands on their time by other matters are great or that they have a greater interest in activities other than viewing television.

Some tentative conclusions are as follows: (1) Television is a form of communication of almost universal appeal to both sexes, all ages, occupations, and educational levels. (2) The PTI's and PrTI's as indicators of interest in

to time in order to ascertain changes in attitudes toward television programs. (7) More experimental designs are needed for determining the factors involved in differences in attitudes toward the same program at different times by the same persons. (8) More non-directive interviewing is needed in order to locate origins of, and factors in, the differing attitudes toward television programs.

AN APPLICATION OF SEQUENTIAL ANALYSIS TO PROBLEMS RELATIVE TO THE USE OF QUALITATIVE TESTS¹

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The University of Chicago

A special case of the problem discussed herein is the following:

It has been suggested that the Thematic Apperception Test possesses the virtues of participant observation while avoiding its disadvantages. We shall consider the problem of determining whether the T.A.T. can provide data "sufficiently accurate with respect to participant observation." If so, the T.A.T. might be used by the investigator to replace participant observation which requires very much more time.²

Suppose that it is possible to establish three general types (say, A₁, A₂, and A₃) of behavior by means of participant observation and that

¹ Prepared in connection with research sponsored by the Office of Naval Research.

² This problem was raised by Miss Sally Cassidy, who has devised a T.A.T. series which is designed to get at the sensitive taboo-filled area of the religions. She is studying behavior toward clerics.

the T.A.T. test is given to the entire population. Suppose further that the T.A.T. analyst is asked to place the protocols into these three categories. Let p be the true proportion of incorrect T.A.T. diagnoses (not stating A_1 when A_1 , not stating A_2 when A_2 , or not stating A_3 when A_3) for the entire population. If the investigator is asked under what conditions would he feel justified in using the T.A.T. he might reply "when p is .1 or less." Let us describe this answer graphically.

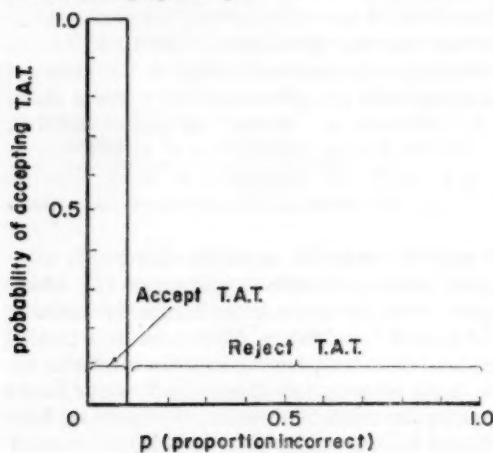


Fig. 1

In other words, we have replaced "using the T.A.T." by the number 1 (the probability of using the T.A.T.), and "rejecting the T.A.T." by the number 0 (the probability of using the T.A.T.). Now let us ask the investigator the following question: "If the true proportion of incorrect diagnoses were .099 would you accept the T.A.T. and if, on the other hand, the true proportion were .101 would you act differently (reject the test)?" The investigator might hesitate in describing his feelings on this point, and we present this graphically as follows:

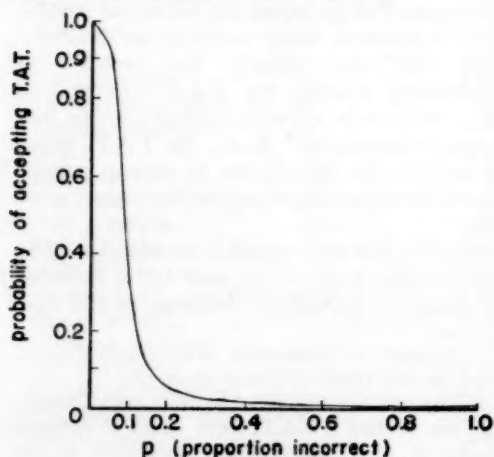


Fig. 2

That is, he might reply, "Roughly speaking, if the true p were .15, I would be inclined to use the test, say 1/10 of the time and would be inclined not to use it the remaining times. If $p = .05$, I would be inclined to use the test, say, 95/100 of the time."

Since in practice we are unable to study the entire population, let us consider the following procedure: A competent T.A.T. analyst is asked to decide, on the basis of the test results alone, into what class A_1 , A_2 , or A_3 , a given person belongs. The analyst is then given a random sample of tests (preferably containing the same number in each class) and is asked to declare his diagnosis for each case after it has been analyzed. Suppose that you are then able to observe whether or not the analyst has correctly diagnosed the case. Let d_n be the number of incorrect diagnoses (defective) made in analyzing the first n tests, $n=1, 2, 3 \dots$. We may describe a possible result of this procedure thus:

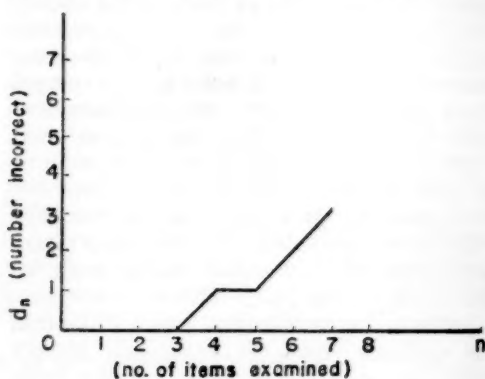


Fig. 3

That is, observing the d_n curve, we see that the analyst erred on the fourth, sixth, and seventh tests.

Suppose now that before the analyst diagnoses the tests a graph is drawn so that the results may be recorded.

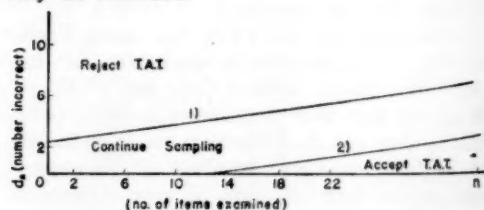


Fig. 4

We have drawn two lines:

- (1) $2.3891 + .09193 n$
- (2) $-1.8608 + .09193 n$

on the graph and propose the following plan: when the analyst makes his n th ($n=1, 2, 3 \dots$) decision d_n is calculated and plotted on Fig. 4. We continue this procedure until the plotted

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d_n curve crosses one of the lines. If line (1) is crossed we reject the T.A.T.; if line (2) is crossed we use the T.A.T.

Now, we might expect that if this procedure were used more than once (for another random sample from the same population), different d_n curves would be obtained and hence the final outcomes (i.e., the number of tests analyzed before a decision of acceptance or rejection is made) may also be different. One might then ask what is the chance of accepting the T.A.T. if we use the aforementioned procedure. This chance will, of course, depend on the true, but unknown, value of the probability p of making an incorrect decision; e.g., when $p=1$, the $\Pr \{ \text{Accepting T.A.T.} \mid p=1 \} = 0$, and when $p=0$ we have $\Pr \{ \text{Accepting T.A.T.} \mid p=0 \} = 1$.

For the outlined procedure, when in fact p is the true probability of making an incorrect decision, we have Table 1.

TABLE 1

p	$\Pr \{ \text{Accepting T.A.T.} \mid p \}$
1.00	.00
.15	.10
.09	.56
.05	.95
.00	1.00

Hence, one sees that this procedure obtains results similar to those described in Fig. 2. That is, if the investigator answers the questions put to him as described, then the sampling procedure furnishes an operational method for satisfying his reply.

Suppose the investigator had replied "Roughly speaking, if the true $p=.05$ I would be inclined to use the T.A.T. 95/100 of the time, and if the true $p=.10$, it would be a toss-up (I would be inclined to use the test about $\frac{1}{2}$ the time)." Then if lines (1) and (2) are replaced by:

$$(3) \quad 3.0816 + .07236 n$$

$$(4) \quad -.8590 + .07236 n$$

in Fig. 4 and the analogous sampling procedure is applied, we would find that the analogue of Table 1 for this new procedure is Table 2:

TABLE 2

p	$\Pr \{ \text{Accepting T.A.T.} \mid p \}$
1.00	.00
.10	.50
.07	.78
.05	.95
.00	1.00

Hence, we see that this sampling plan obtains the operational analogue of the investigator's wishes.

More generally, suppose the investigator states that "if the true probability of making an incorrect reply is p_1 , I would be inclined to reject the test $\alpha \times 100$ in 100 times, and if the true probability of making an incorrect reply is p_2 ($p_2 > p_1$), I would be inclined to use the test $\beta \times 100$ in 100 times." Then the two lines may be obtained (Cf. Table 2, 23 in [2]) such that if these lines are inserted in Fig. 4 and if the sampling procedure described is adopted (deciding whether or not to accept or reject T.A.T. when the d_n curve crosses one of the lines), the investigator's wishes will be fulfilled. It is clear that this procedure leaves uncertain the number of tests one must necessarily analyze before coming to a decision. This method may require more data than the usual single-sample procedure would have; but on the average it requires fewer data (sometimes the saving in observations is more than 50 per cent). One might calculate beforehand the maximum expected number of tests necessary (Cf. Table 2, 23 in [2]); e.g. for Table 1 (lines 1 and 2) the maximum expected number of tests is very nearly 53, for Table 2 (lines 3 and 4) the maximum expected number of tests is about 40.

The careful reader will have observed that the sequential procedure described herein could be used to study any two tests or methods of diagnoses which purport to measure the same attribute. This procedure may be used to study the validity of any method of qualitative prediction. That is, we are given m subcategories of an attribute (qualitative variate) A , say, $A_1, A_2, A_3, \dots, A_m$ and we have a method of prediction T (possibly the T.A.T. diagnosis, score on questionnaire, focussed interview, participant observation, etc.). We decide upon the values of p_1, p_2, α, β , so that "if the proportion of incorrect predictions using method T for the entire population is p_1 , we would be inclined to reject the method $\alpha \times 100$ in 100 times, and if the proportion of incorrect predictions is p_2 , we would be inclined to use the method $\beta \times 100$ in 100 times." Then the appropriate two lines may be obtained and the sampling procedure may be begun.

The sampling method described herein was developed by Abraham Wald (1). A non-mathematical discussion together with tables, charts, and computational simplifications appears in a report prepared by the Statistical Research Group of Columbia University (2). The problem of "major and minor errors of prediction (defects)" is discussed in Sec. 2.27 of this work. The problem of deciding between two methods of prediction with respect to the predicted variable is also covered in Sec. 3 (Double Dichotomies), and in Chap. 6 of Wald. A good ex-

position of these sampling schemes from the practical point of view is contained in a work by Freeman and others (3).

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A NOTE ON RELIEF PROGRAMS AND CRIMES DURING THE DEPRESSION OF THE 1930's¹

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The State College of Washington

In a recent investigation of the relation between business cycles and cycles of various crimes, the effect of the relief effort during the depression of the 1930's was noted as a social force distorting the relation under study.² During this period an unprecedented volume of relief was administered by public and private agencies in an effort to alleviate the effects of the depression among the masses of unemployed and financially destitute.

Previous researchers have viewed an increase in relief as an indication of increased poverty, without taking into account the social effects of relief programs.³ It is the hypothesis of the present study that the relief programs administered during the 1930's may have done much to mitigate the economic hardships brought on by the depression, and so may have partially eliminated some of the anticipated social effects of the business recession.

The tremendous rise in the volume of relief administered during the period under study is strikingly illustrated in Figure 1, "Relief in 116 Urban Areas, 1929-40"⁴ It is clear from

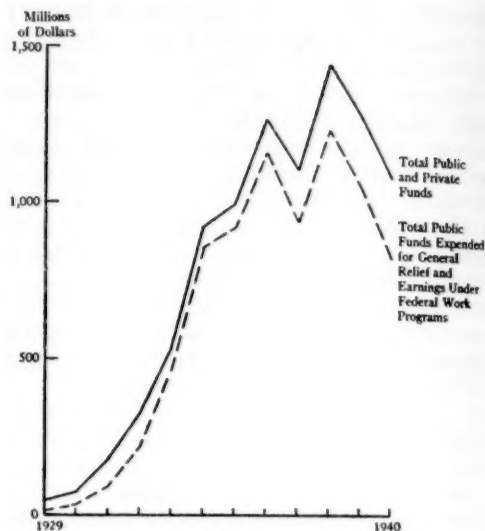


FIG. 1.—Relief in the 116 Urban Areas, 1929-40.

these data that the increased relief effort came about as a result of public rather than private funds. It is also clear that the increase came in general relief (direct and work) and from federal work programs rather than from the various special relief programs, such as aid to the blind, aid to dependent children, and old age benefits. The urban relief series is "the only continuous, comprehensive record of relief trend extending back to the period preceding Federal participation in relief."⁵

In the present study, crimes indexes were constructed on the basis of crimes-known-to-the-police data published by the Federal Bureau of Investigation.⁶ Four crime groups were chosen for study, viz., burglary, robbery, aggravated assault, and murder (non-negligent manslaughter). The uniform crime reporting system dates from the year 1930. It was found that several cities reported data on crimes known to the police in accordance with the principles developed by the International Association of Chiefs of Police prior to 1930.⁷ Crime

1939 and 1940, Public Assistance Report No. 3 (Washington: Government Printing Office, 1942).

⁵ The 116 urban areas represented, in 1930, 37.1% of the total United States population and 66.1% of the total urban population of the country. In 1940, these percentages were 37.3% and 65.9%, respectively.

⁶ Cf., Federal Bureau of Investigation, *Uniform Crime Reports for the United States and its Possessions* (Washington: Government Printing Office, I-XI, 1930-40).

⁷ For the rationale of the selection of crimes indexes and a discussion of the reliability of the data, the reader is referred to Short, op. cit., chapter ii. Cf., also, Thorsten Sellin, *Research Memorandum on Crime in the Depression* (New York: Social Science Research Council, 1937).

¹ The writer is indebted to Professors W. F. Ogburn and E. W. Burgess for directing attention to this problem and for helpful suggestions throughout the research.

² The findings of this larger study are reported in James F. Short, Jr., "An Investigation of the Relation Between Crime and Business Cycles" (unpublished Ph.D. dissertation, Department of Sociology, University of Chicago, 1951).

³ Cf., Harold A. Phelps, "Cycles of Crime," *Journal of the American Institute of Criminal Law and Criminology*, 20 (May, 1929), 107-21.

⁴ Adapted from Enid Baird, with the collaboration of John M. Lynch, *Public and Private Aid in 116 Urban Areas, 1929-38—With Supplement for*

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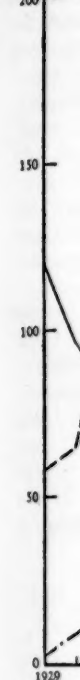


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and relief indexes were therefore constructed on the basis of those cities over 100,000 population for which crimes known-to-the-police data were found to be available for the year 1929.⁸

Crime and relief series for the same cities have been plotted, with the business cycle,⁹ on standardized scales in Figures 2 through 5.¹⁰

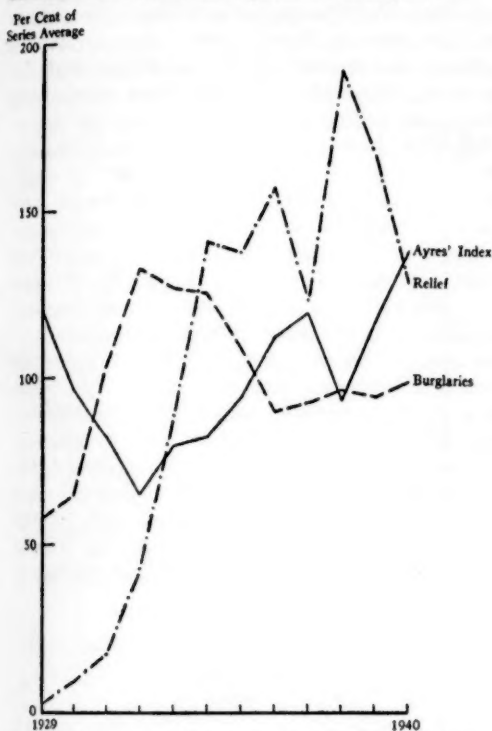


FIG. 2.—Burglaries Known to the Police, Total Public Funds Expended for General Relief and Earnings Under Federal Work Programs, in 10 Cities, and Ayres' Index of Business Activity, Expressed in Terms of Per Cent of the Average for Each Series, 1929-40.

⁸ Cities included in the crimes and relief indexes are (1) burglary: Baltimore, Chicago, Cincinnati, Cleveland, Denver, Detroit, Kansas City (Kansas), Los Angeles, Rochester (N. Y.), and Wichita; (2) robbery: Baltimore, Boston, Chicago, Cincinnati, Cleveland, Denver, Detroit, Kansas City (Kansas), Los Angeles, Rochester (N. Y.), and Wichita; (3) aggravated assault: Buffalo, Cincinnati, Cleveland, Denver, Detroit, Kansas City (Kansas), Los Angeles, Rochester (N. Y.), and Wichita; (4) murder: Baltimore, Buffalo, Chicago, Cincinnati, Cleveland, Denver, Detroit, Kansas City (Kansas), Los Angeles, Rochester (N. Y.), and Wichita.

⁹ The business index employed in this research is the Cleveland Trust Company's index of "American Business Activity Since 1790," commonly referred to as "Ayres' index" because Leonard P. Ayres authored it. We have used this index as expressed in terms of the 1923-24-25 average equal to 100. These basic data, not fitted for trend, were sent to the writer by the Cleveland Trust Company.

¹⁰ In order to facilitate comparison of relief

INTERPRETATION

It will be noted that the relief series for each group of cities are very similar. The pattern of their behavior exhibits little variation. In each case, the volume of relief is below the series average until 1934, after which it remains considerably above the average for the remainder of the series.

The business cycle is, of course, the same for each group of cities. It will be observed that, by 1934 when relief was "adequate," or at a high level, the business cycle was climbing steadily toward the peak in 1937. Thus, it appears that relief for these cities was inadequate at the time of the business cycle trough in 1932, but following 1934, when the business cycle was making rapid strides towards recovery from the depression, relief remained at a high level.

While maintaining this high level, relief tended to fluctuate in accordance with the "demands" of the business cycle. Thus, after reaching a peak in 1936, at which time business

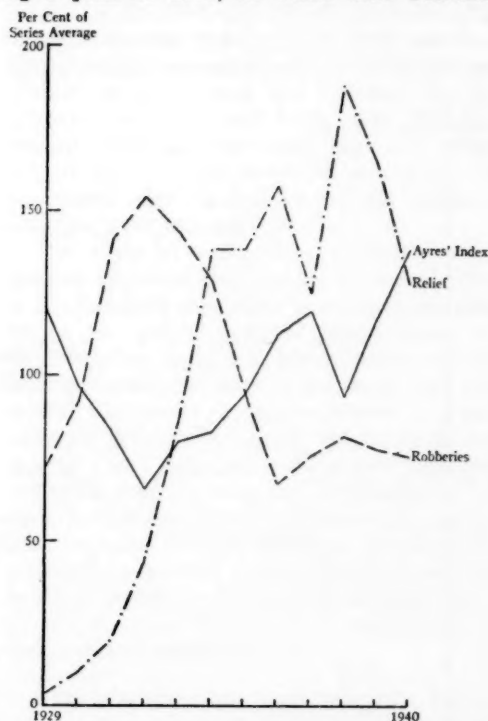


FIG. 3.—Robberies Known to the Police, Total Public Funds Expended for General Relief and Earnings Under Federal Work Programs, in 11 Cities, and Ayres' Index of Business Activity, Expressed in Terms of Per Cent of the Average for Each Series, 1929-40.

series with crime and business cycle series, the mean of each of these series was computed, and each index for a given year expressed in terms of its percentage of the index mean.

activity was well on its way towards recovery, relief dipped sharply as the business cycle rose to a peak in 1937. When, in 1938, the business cycle fell off sharply, relief expenditures were increased even more sharply, reaching an all-time peak. Thereafter, in 1939 and 1940, relief decreased sharply and steadily as the business cycle rose sharply and steadily. Thus, it appears that during the later years of the series, relief and the business cycle complemented each other in some measure.

How did all this affect crimes? During the first five years of the series, relief does not appear to have been extensive enough to have influenced in any significant way the relation between crimes and the business cycle. Burglary and robbery both rose to a peak in 1932 and remained at a high level through 1934. After 1934, however, both of these crimes experienced rapid decreases in volume. Robbery fell to a point below the 1929 trough, and burglary fell considerably below the series average. Both reached troughs in 1936, when relief rose to a peak.

After 1936, burglary and robbery remained relatively stable, though tending slightly to fol-

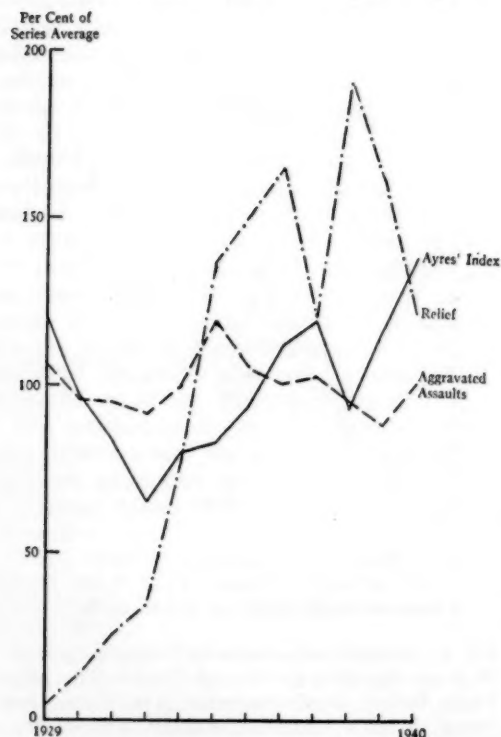


FIG. 4.—Aggravated Assaults Known to the Police, Total Public Funds Expended for General Relief and Earnings Under Federal Work Programs, in 9 Cities, and Ayres' Index of Business Activity, Expressed in Terms of Per Cent of the Average for Each Series, 1929–40.

low the business cycle, inversely, rather than the relief series. Relief and business, between 1936 and 1940, fluctuated considerably, though in opposing directions, i.e., when business fell, relief rose, and with business expansion, relief dropped off. This would appear to be a significant finding, particularly in the light of the earlier violent fluctuations of these crimes.

The relation between relief and aggravated assault and murder is less clear than that described, above. No very consistent relationship

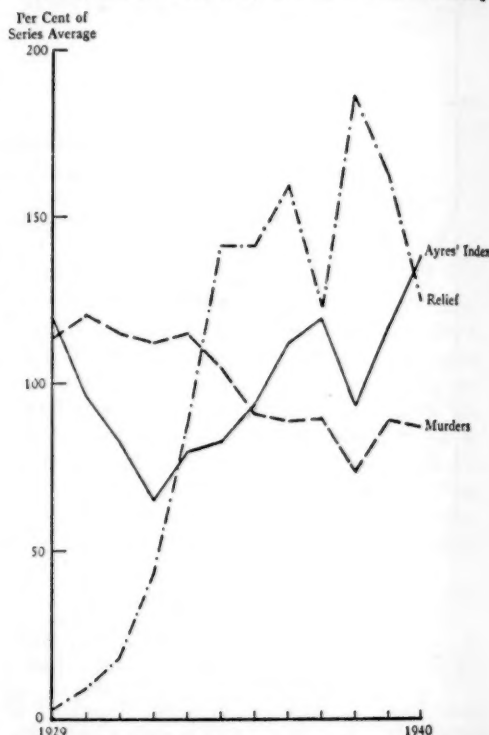


FIG. 5.—Murders Known to the Police, Total Public Funds Expended for General Relief and Earnings Under Federal Work Programs, in 11 Cities and Ayres' Index of Business Activity, Expressed in Terms of Per Cent of the Average for Each Series, 1929–40.

is discernible. Neither of these crimes experienced the rapid change during the first few years of the series which characterizes burglary and robbery. Both of these crimes fluctuated as much following 1934 as they did up to that year. Murder, in particular, reflects the 1938 trough of the business cycle with a sharp trough of its own. Aggravated assault rose slightly in 1937, dropped off to a trough in 1939, and then rose sharply with the business cycle in 1940.

Relief would not be expected to have the same degree of influence on murder and aggravated assault as upon robbery and burglary. Whereas relief might be expected to alleviate the economic imperatives associated with the

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latter two crimes, it probably does not improve economic conditions sufficiently to influence the more serious crimes of violence against the person, with their positive correlation with the business cycle.¹¹

These results do not prove a causal connection between the relief programs of the 1930's and the reduction of crimes against property. It has been suggested that relief programs, in conjunction with recovery of the business cycle, tended to keep burglary and robbery at a relatively low and stable level during the years following 1934, in contrast to the violent fluctuations of these crimes in the initial stages of the depression. Relief programs may thus be viewed as being in the nature of a social force. As such, however, relief programs are more capable of human direction than are the phenomena usually identified as social forces.

Because the years in these series contained the only attempt in our nation's history to solve the problems of unemployment and depression through relief programs, it is not possible to test further these relationships in this country, except by breakdown of the series into various urban areas. Some comparison might also be possible with other countries which did not pursue such extensive relief programs as have been studied in this paper.

THE ANALYTICAL PROBLEM TECHNIQUE FOR TEACHING SOCIOLOGY IN A LAW SCHOOL

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For the last three years the writer, a sociologist on a law school faculty, has undertaken to demonstrate what contributions, if any, techniques of social science research can make to the lawyer's role in legislative policy making. While the purpose and validity of such an endeavor are examined elsewhere,¹ some experimental techniques of teaching sociology in a law school may deserve consideration here.

The fundamental complications facing the writer in the above named teaching situation

¹¹ For the statistical analysis of the relation between cycles of crimes and business cycles on the basis of the indexes employed in this paper, cf., Short, op. cit., chapters v-vi.

¹ See Robert C. Sorensen, "Sociology's Potential Contributions to Legislative Policy Determination," *American Sociological Review*, 16 (April 1951), 239; Julius Cohen, "Toward Realism in Legislation," *Yale Law Journal*, 59 (April 1950), 886; Esther Lucille Brown, *Lawyers, Law Schools, and the Public Service*, New York: Russell Sage Foundation, 1948, 226 and 204-225.

had to do with the attitudes of the law students, the extent of social science's methodological developments, and the nature of the teaching materials available. These problems are not in themselves unique, but the situation in which they occurred provided them with a peculiar complexity. Law students in the writer's classes were sixth and seventh year students whose driving motivation was to earn their eligibility to practice law.² Sociology as an academic subject was a thing of past pre-legal training. Even had most students believed that sociology offered everything concerning subjects of which they knew nothing, it was probably felt that the time and place for classroom recognition of the social sciences had long since passed.

It was completely the student's own criteria of usefulness which determined his evaluation of the course and his acceptance or rejection of the teacher's approach. There could be no "whole body of knowledge" which the student would be expected to absorb in its entirety before he should begin to ask questions. No halo effect could grace any teaching materials simply because a Burgess or a Stouffer or a Blumer or a Lundberg had provided the inspiration for what was being said. And for reasons deserving more study than this paper can afford, the little carryover in interest or application from the sociology of the student's pre-legal days was negative.

The reality of social science's present methodological dilemmas could not be overlooked. This is not to decry the progress of sociology, but simply to remark that for the purposes of demonstrating sociology's contribution toward freeing a much disputed policy issue from the area of testimonial and argumentation, too few adequate generalizations can yet be made regarding social behavior and the methodologies by which they are obtained. Furthermore, we could not present theory and unverified knowledge—valuable though they may be—but felt obligated to provide precise examples of the *methods by which* social science research might be drawn upon by a lawyer undertaking a verifiable fact-finding project.

² The new state bar association rules require that a person possess an LL.B. or a J.D. degree from a recognized law school before he can even apply for the Nebraska State bar examination. Law office education is no longer permitted. (For evidence of this trend in other states, see Willard Hurst, *The Growth of American Law*, Boston: Little, Brown, & Co., 1950, 250.) The teaching situation was further complicated by the fact that most of the students were veterans whose education had been interrupted, who were older than the typical student, and who were naturally anxious to take advantage of their income earning potentials.

The teaching materials normally utilized by sociologists in the classroom emphasize their own shortcomings. Widely diversified—combining sentiments with findings, and common sense with empirical data—the usual textbooks, while providing an excellent introduction to sociology, offered no perspective which would satisfy the law student; neither in terms of how he viewed his chosen profession nor in terms of our hard hitting declaration that we wanted to demonstrate the *use* to which sociology could be put by lawyers practicing in the legislative arena.

After many false starts, the analytical problem was seized upon as a teaching approach. By "analytical problem," is meant a statement regarding the employment of research methodologies toward a verifiable answer to a social problem in dispute, the reliability and validity of which would be analyzed by the student. Its use enabled us to test the student's powers of analysis and allow him to develop his criteria of judgment when faced with a purposely designed kind of problem he, himself, might later be involved in, and to develop a discussion about the application of social science methodologies to some policy issues so that the student could decide for himself whether or not a given research technique is superior to the testimonial and whether or not it is properly utilized. No effort was made to make sociologists out of lawyers, but only to equip students with faculties of recognition and perception in this area.

Three types of analytical problems were used. The first involved a simulated transcript of a legislative hearing in which both testimonials and the results of social science research were introduced. The contents of the problem were feigned but there was nothing whatsoever about the problem that could not happen any day at any legislative committee hearing to any lawyer.

One analytical problem was stated as follows: "The lawyers representing the opponents to legislation establishing a public defender for counties of over 100,000 residents have claimed that public opinion poll results indicate *without question* the opposition of public opinion in Lancaster County to a public defender's office. You are an attorney representing those groups which favor the legislation. So far as public opinion is concerned, all you have presented up to now are the favorable reactions of prominent citizens and law enforcement agents. Your opponents now argue that scientific evidence demonstrates without doubt that public opinion is overwhelmingly opposed. May this conclusion be attacked? If not, why not? If so, how?"

The purpose of this analytical problem was to orient the student to some comprehension of

how social science research techniques could be used, and to show both the logic and the logical fallacies that could be employed. Brief excerpts follow which will suggest how the student may study the manner in which social science can be both used and misused in an effort to persuade a legislative policy maker on the basis of fact rather than fiction. He was asked to write out his response in full but to be prepared for critical class discussion. A very few supplementary readings were offered the student with each such problem.

TRANSCRIPT

Hearing on L.B. 9999—To Establish a Public Defender in Lancaster County, Nebraska. Before the Government Committee—State Capitol, April 27, 1951.

The Chairman: . . . and now, who is the next person caring to appear against L.B. 9999?

Mr. Potter: In view of the remarks made by the proponents of this bill as to the public this and the public that . . .

The Chairman: State your name and address to the committee, if you will, sir.

Mr. Potter: Excuse me. Johnson W. Potter, Attorney at Lincoln, Nebraska, representing the Lawyers Committee for Equal Justice of Lancaster County.

Mr. Chairman, a committee of prominent lawyers who are also prominent citizens in this very community—the Lawyers Committee for Equal Justice of Lancaster County . . . It seemed to us that a reliable public opinion poll which we would sponsor but not conduct was the main solution.

This poll of 1000 citizens from Lancaster county revealed that 70 per cent of the people polled voted "no" to this proposal and that only 30 per cent favor it. These results are listed on the sheet I hold in my hand—certified by the famous organization that conducted the poll, the Nebraska Opinion Research Company, Inc. . . .

The Chairman: Are there any questions for Mr. Potter?

Senator Bronson: Yes, I have a question. You claim that this poll accurately represents public opinion. How can you prove that 1000 people speak for all the people in the county—there's about 125,000 of them, aren't there?

Mr. Potter: I'm glad you asked that question, sir. You're quite right, one could interview several thousand people and still not necessarily get a very accurate picture of what people as a whole think.

We took a random sample, which means that every individual in the population being polled had the same probability of being included in the sample. The population we wanted polled consisted of all residents of Lancaster county over 21 years of age. These individuals were selected without specific reference to any characteristic because the committee was interested in public opinion as a whole. . . .

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Senator Bronson: Yes, but how do you know that chance is the only determinant of the people you chose for your sample?

Mr. Potter: We obtained our random sample in this way: . . .

b) A table of randomized numbers known as Tippet's Numbers³ was then put to use. These numbers are so arranged that any digit from zero to 9 has an equal chance of appearing in any position in the table. It is as though thousands of numbers were mixed up in one large hat, then drawn out one by one completely by chance. There are 10,000 four digit numbers which are read from left to right. To quote a portion of it:

7216
5870
4703
5620
2921

c) An individual began reading up and down the columns of numbers beginning with page one of this Tippet's Numbers table. Each time one of the numbers he came upon corresponded . . .

In 97 cases out of every 100 the extent to which the Yes-No opinions could differ from those that would be expressed by the universe as a whole could vary only from 0.00% to 3.16%. . . .

Senator Ashton: How do you know that everyone had an opinion on the subject or knew what he was talking about? Maybe a majority of the people who are actually acquainted with the issue favor a public defender.

Mr. Potter: As a matter of fact, I have a brief report with me discussing these questions. Contrary to some surveys, these pollsters didn't simply go out looking for "yes" and "no" answers. They did want people to know what they were talking about, Senator, before they came away with a "yes" or "no". Five types of questions were asked in the process of eliciting opinion from each respondent. But let me read the report, and I've got it right here. . . .

Senator Bronson: How can you be sure that the people who went out on these polls really went out to get the answers? How do you know some of them didn't just make up the answers? Just like kids distributing handbills often will dump a bunch of them in a gutter or garbage can, I know that they could make up a bunch of answers.

Mr. Potter: The polling organization had a checker system in operation which was conducted by one of its supervisors. He made it a point to pay a personal visit to one of every 20 blocks and 20 farms in the order they were drawn from the randomized numbers.

Senator Bronson: Yes, but only a dumb cheater would not even bother to call upon the parties he was to interview. He could call on them and con-

vince them he had accomplished something, but leave very quickly and convince you with invented answers that he had enjoyed satisfactory interview relationships with all of them.

Mr. Potter: I think we were able to get at that problem too, sir. . . .

The second species of analytical problem presented a greater challenge to the student. In this instance various research techniques which had been applied to the study of live social policy problems by the writer or others were presented the class for their analysis. Each student was expected to decide for himself whether or not the particular technique (for example, an attitude questionnaire which might be mailed to all members of a profession in the community for the purpose of predicting their future behavior) had genuine relevance to the means-ends solution of the policy problem under consideration; whether or not it was capable of measuring what it set out to measure; what inferences, if any, could be drawn from the results. The student also evaluated the significance in terms of probability, the use of this method, and its success in freeing the policy issue from the area of disputation.

Thus were realistic opportunities offered the student for examining the reliability and validity of the personal document, of sampling technique, the interview, the mailed questionnaire, content analysis, etc. Resource materials, such as the census, already making use of the techniques under consideration were referred to for illustrative purposes. The student gradually came by the realization that given social science research techniques can be applied to some problems and are completely lacking for the solution of others. It also became apparent that techniques can be utilized both effectively and wrongfully—something useful to know when it comes to analyzing the validity of any arguments based upon the use of these same techniques.

Finally, use has been made of a third analytical problem type which obligated the student to design an experiment which he, as a lawyer with an active interest in a policy matter disputed before a legislative committee, would recommend be conducted for the purpose of getting at the actual facts. Legislative committee hearings (the occasions in which proponents and opponents of a newly proposed piece of legislation speak their full) were attended by students; other hearings were tape-recorded by the writer and later played in classes or made available to the student in the form of written transcripts—all of this for the purpose of discussing the effectiveness of opposing legal arguments on a rational plane of persuasion.

³ L. H. C. Tippet, *Random Sampling Numbers*, Cambridge (England): Cambridge Univ. Press, 1927.

A hearing held by the labor committee of the state legislature on a fair employment practices bill is a good case in point. The central issue was whether or not employment discrimination actually existed in the state. Students returned from the hearing generally contemptuous of many witnesses' testimony—declarations which highlighted sentiments embodying race, religion, poverty, the underdog, prejudice, and other characteristics about which it is difficult to testify on a rational or fact-establishing basis. Such reactions were healthy in that they pointed to the need for a more rational approach to policy issues.

The students were then asked to assume the following: members of the legislative research council had asked them, as lawyers, to recommend a research project designed to prove whether or not discrimination in urban employment actually existed in the state of Nebraska and, if so, to what extent. Each student was asked to submit his own design of experiment—a plan for research which would specify the goals of the undertaking, the methods to be utilized, and the reliability and validity of those methods. It was also suggested that all possible methods be enumerated and evaluated so far as their worth to the experimental design was concerned, whether they were to be used or not. Thus the student had to examine social science methods he had read about and discussed in the context of an obligation resting upon him, as a practising attorney, to organize a research project about a vital legal and social issue.

The reader may well ask, as some of the law school students did, "What is the use of all this anyway? Everyone knows that the legislator has already made up his mind or has someone deciding these issues for him. Of what sense is teaching a rational approach to policy problems?" Our replies can be summarized as follows:

1. The time has come to initiate a more rational approach to legislative policy deliberations.

2. Where the legislator has not made up his mind in a given instance, it may be the resort to verifiable fact-finding which tips the scales in favor of the advocate trained to recognize and demonstrate its use.

3. Where a lawyer's opponent is resorting to "social science evidence," it is well to know what should be expected in the way of probative evidence so that his arguments can be nullified if they are merely disguised as verified facts scientifically gathered.

4. Effective legal opposition and unfriendly legislators will seek every possible method to challenge the logic and good sense of an argu-

ment. Testimonials can always be matched by opposing testimonials. It is at this point that the assistance of indisputable facts rather than someone's opinions may save the lawyer from being completely overwhelmed by such calculated assaults as a mass of petitions or a flurry of name calling.

Thus we find that the student accepts sociology for what use he can make of it—once he is convinced of the necessity of becoming versed in the rational approach to policy issues. Sociology is neither offered nor accepted for its own sake. The degree of research advancement and the teacher's facility of interpretation are tested by the analytical problem technique of teaching sociology in the law school.

CIVIL MARRIAGE IN NEW YORK STATE, APART FROM NEW YORK CITY

J. V. DEPORTE

New York State Department of Health

The type of ceremony, religious or civil, has been given little attention in statistical studies of marriage. Even the prevalence of civil ceremonies is a conjectural quantity; offhand estimates by some of my colleagues ranging from 2 to 50 per cent. So far as I have been able to discover—with the assistance of Dr. Samuel C. Newman, Professor of Sociology at the University of Akron, formerly Chief of the Marriage and Divorce Analysis Branch, National Office of Vital Statistics—the only reasonably comprehensive figures of marriages classified by type of ceremony (in a selected number of states) were those published some ten years ago by the Bureau of the Census.¹ It seemed desirable, therefore, to examine the marriage records of New York State, outside of New York City—records which are in the custody of the State Department of Health—from the point of view of type of ceremony as well as the pertinent facts given in the marriage license and marriage certificate: residence, age, color, birthplace, and previous marital status of bride and groom. This was done with the records for 1949, the latest "normal" year.

In New York State "marriage, so far as its validity in law is concerned,"² is a civil contract, but the ceremony may be either civil or religious. This is true of all other states except Delaware, Maryland, and West Virginia, where only religious ceremonies are recognized, except

¹ U. S. Bureau of the Census, *Vital Statistics—Special Reports*, Vol. 15, No. 8, 1941 and Vol. 15, No. 19, 1942.

² Domestic Relations Law, Section 10.

that in Delaware, a marriage ceremony may also be performed by the mayor of the city of Wilmington.

Of the 54,748 couples who were married in 1949 and whose marriages were recorded in upstate New York, 5,178, or 9.5 per cent, had civil ceremonies. These ceremonies were performed by:

	Num- ber	Per Cent
Justices of the peace.....	3,537	68.3
Judges of city court.....	642	12.4
Judges of county court.....	326	6.3
Judges of police court.....	269	5.2
Other state and local judges.....	171	3.3
Mayors	186	3.6
City clerk (of the City of New York) ^a	47	0.9
Total.....	5,178	100.0

Thus, somewhat more than two-thirds of the civil marriages were performed by justices of the peace.

RESIDENCE OF THE BRIDE

The distribution of the civil and religious marriages by residence of bride was as follows:

Residence	Civil	Religious
Total	5,178	49,570
Urban	3,079	30,858
Rural	1,216	16,165
Non-resident	883	2,547

In 17.1 per cent of the civil marriages the bride was not a resident of upstate New York, but only 5.1 per cent of the brides who were married with a religious ceremony were non-residents. The percentage of civil marriages was higher among urban than among rural residents, 9.1 as contrasted with 7.0 per 100 total marriages.

AGE OF BRIDE AND GROOM

The minimum legal age for marriage in New York State is 16 years for men and 14 years for women. There are also these limitations for persons under 21: consent of the parents is required if the woman is under 18 or the man

^aThe only city clerk who may, under the Domestic Relations Law, perform a marriage ceremony is "the city clerk of a city of the first class over one million inhabitants". New York City is the only one in the state which meets this qualification. In New York State the marriage ceremony may be performed anywhere upon a license issued by any city or town clerk, but the marriage documents must be filed with the clerk who issued the license.

under 21; in addition, if the woman is under 16, the approval and consent of a judge of a children's court must also be obtained. If either the man or the woman is under 21, the civil marriage ceremony may be performed only by a mayor of a city, a judge of a court of record, a judge of a children's court, and judges of certain courts in New York City. Justices of the peace, who perform the majority of the civil marriages, are thus forbidden to officiate at a marriage if either the prospective bride or groom is under 21. This prohibition, however, is quite frequently "overlooked"; in 1949, for example, in 149 of the 624 civil marriages in which the bride was under 21, the ceremony was performed by a justice of the peace.

The following table shows the ages of the brides and grooms who were married by civil or religious ceremonies.

TABLE 1. CIVIL AND RELIGIOUS MARRIAGES BY AGE OF BRIDE AND GROOM

Age	Bride		Groom	
	Civil	Religious	Civil	Religious
All ages	5,178	49,570	5,178	49,570
14 years	—	18	—	—
15 years	8	134	—	—
16 years	18	978	2	42
17 years	69	1,923	7	196
18 years	207	5,037	28	753
19 years	156	5,418	41	1,644
20 years	166	5,437	58	2,738
21 years	462	5,196	307	5,377
22 years	319	4,263	255	5,420
23 years	288	3,393	257	4,685
24 years	277	2,580	258	4,259
25-29 years	1,032	6,953	1,137	12,474
30-34 years	738	2,926	867	4,671
35-44 years	904	2,696	1,025	3,519
45-54 years	355	1,506	572	1,818
55-64 years	148	831	280	1,292
65 years and over	31	281	84	682
Mean ages	30.7	25.2	34.4	28.4
Median ages	28.0	22.2	31.4	24.9

The couples who had a civil ceremony were older than those who had a religious ceremony. Only 38 per cent of the brides in the civil marriages were under 25 years, as compared with 69 per cent in the corresponding group of religious marriages; of the grooms, 45 per cent in the civil group were under 30 years of age as contrasted with 76 per cent in the group which had a religious ceremony.

The proportion of civil marriages was highest, 25.1 per cent, among brides between the ages of 35 and 45 and among grooms, 23.9 per cent, in the next older group, 45-54 years. The rela-

TABLE 2. PREVIOUS MARITAL STATUS OF BRIDES AND GROOMS

	BRIDES			GROOMS		
	All Marriages	Civil Marriages		All Marriages	Civil Marriages	
		Number	Rate per 100 Marriages		Number	Rate per 100 Marriages
Total	54,748	5,178	9.5	54,748	5,178	9.5
Single	46,521	2,898	6.2	46,858	3,301	7.0
Widowed	3,377	533	15.8	3,423	487	14.2
Divorced	4,660	1,692	36.3	4,311	1,350	31.3
Divorced and widowed	190	55	28.9	156	40	25.6

tive number of civil marriages was lowest in the youngest age group, under 21 years, 3.2 per cent for brides and 2.5 per cent for grooms. Even in the next group, 21-24 years, where there are no restrictions on justices of the peace, the proportions of civil marriages were lower than at any of the older ages—8.0 and 5.2 respectively.

PREVIOUS MARITAL STATUS

The proportion of brides who had a civil ceremony was least among those who were contracting their first marriage and highest among those who had been previously divorced. The widowed and those who had been previously both widowed and divorced were in an intermediary position:

Almost one-third of the brides who had a civil ceremony were divorcees, as compared with 6 per cent in the case of those who had a religious ceremony. Among the grooms, the corresponding percentages were 26.1 and 6.0. The proportion of widows among the brides was 10.3 per cent in the civil group, or almost double the 5.7 per cent among the religious group; and practically the same relationship held between the proportions for the grooms, 9.4 and 5.9.

The relative number of single, widowed, and

divorced persons was essentially the same for the brides and grooms who had a religious ceremony, but for those who were married by a civil ceremony the proportion of widowed, especially those who had been previously divorced, was considerably higher among the brides than among the grooms.

According to a detailed table not shown here, in 50.3 per cent of the civil marriages either the bride or the groom, or both, had been previously divorced, while in only 10.8 per cent of the religious marriages was there a previous divorce. In the civil marriages the proportion of brides who had been previously divorced was greatest—somewhat more than one-half—between the ages of 30 and 45 years; in the religious marriages the proportion of divorced was greatest—almost one-third—between the ages of 35 and 45. As for the grooms, the proportion of previous divorces in the civil marriage group was greatest—somewhat more than two-fifths—between the ages of 35 and 55. In the religious group the peak, somewhat more than one-quarter of the total, was between the same ages.

It is of some interest, also, to relate previous marital condition to age. The figures for brides are shown below; the indicated relationship holds for grooms, as well.

The proportion of civil marriages among the

TABLE 3. CIVIL MARRIAGES PER 100 TOTAL MARRIAGES, BY AGE AND PREVIOUS MARITAL STATUS OF BRIDE

	Single		Widowed		Divorced*	
	Number	Rate	Number	Rate	Number	Rate
All ages	2,898	6.2	533	15.8	1,747	36.0
Under 21 years	597	3.1	1	10.0	26	16.5
21-24 years	1,084	6.8	14	16.5	248	36.9
25-29 years	579	8.7	41	16.2	412	37.9
30-34 years	308	13.2	41	13.7	389	37.5
35-44 years	245	15.7	159	20.8	500	39.3
45-54 years	69	15.6	143	15.3	143	29.6
55 years and over	16	12.6	134	13.0	29	21.2

* Includes 55 brides who had been both divorced and widowed.

brides who had not been married before generally varied with age from a minimum of 3.1 per cent in the youngest group, under 21 years, to a maximum of 15.7 per cent at 35-44 years, with an almost equal percentage, 15.6, in the next older group.

The rate of civil marriage among brides who had been previously widowed or divorced was also lowest in the youngest group, under 21, but remained on a more or less uniformly high level at all of the older ages.

DISCUSSION

This brief study does not answer directly the questions which are usually asked in regard to civil marriage: why do some people choose this type of ceremony and to what extent is the success of the marriage associated with it? However, the statistical material suggests some reasonable hypotheses.

A considerable, though indeterminate, number of men and women who had been divorced, could not be married in a church because the religious faith of one or both forbids the remarriage of a divorced person.

Some couples belonging to different faiths (as indicated by their national origin as well as some of the other facts in the marriage documents) compromise by not observing the rites of either.

Older persons, especially those who had been widowed, occasionally find a simple ceremony in the chambers of a judge as fitting and sufficient for their emotional needs as a church wedding. This also holds for some of the men and women who are not formally affiliated with any church.

Then there are, in the words of Ray E. Baber, "the hasty or runaway couples"⁴ whom the general public and even some trained observers often associate with civil marriage. Such couples are undoubtedly represented among the 5,178 investigated in this paper, but it is not at all evident that they are numerous. Impetuousness used to be, and presumably still is, a characteristic of youth, but the couples in our civil marriage group are on the average decidedly older than their counterparts in the religious group.

As for the association between the type of ceremony and the chances of success of the marriage, Baber does not find it "surprising that the break-up rate of 'justice-of-the-peace weddings' is higher than that of church marriages." He does not give figures to support this statement, and the present study has none to corroborate or disprove it. If, however, many couples turn to civil marriage because of a previous divorce, does this not indicate a break-up of some earlier religious marriages? For a conclusive answer to this and some other pertinent questions, one would have to trace the history of a sufficiently large number of couples from marriage to its dissolution in death or divorce. Unfortunately, so far as New York is concerned this cannot be done, because the state is one of a minority in which divorces are not yet centrally registered, and therefore some of the basic information required for such an investigation is not available.

⁴ Ray E. Baber, "Religion and the Family." *The Annals of the American Academy of Political and Social Science* (March, 1948), page 95.

BRIDE

Rate

36.0

16.5

36.9

37.9

37.5

39.3

29.6

21.2

COMMUNICATIONS AND OPINION



COMMENT ON THE REVIEW OF THE HUMAN COMMUNITY

To the Editor:

In your June issue, Jerome K. Myers seriously misrepresents my book, *The Human Community*. The book, he says, seems to advocate "a return to 'the good old days' of large families, primary groups, and rural villages." He adds that I consider industrialization evil and he implies that I set up industrialization as an evil contrast to the idyllic little rural village. Statements like this make me doubt whether he has read the book.

The book says repeatedly that we cannot return to "the good old days" and should not try to do so. It says repeatedly that the problem of the decay of the community must be met through the use of modern technology. It gives an entire section to the reorientation of modern administrative and industrial methods to this end as exemplified in the T.V.A. It gives another section to modern methods of industrial manufacturing decentralization. These are incorporated in a chapter entitled, "Labor, the Community, and Industrial Technology."

If Mr. Myers did not see this chapter, he still could have encountered many other statements denying this ancient charge. On page 147, for example, a section of six pages is introduced to show that the economically and culturally isolated small community is anachronous and harmful. On page 292 it surely is made clear even to the most naive critic, that the sciences and technologies, the economic and administrative skills, the educational and psychological techniques of the modern era must be brought more fully to the service of human beings and their communities. (See also pages 72, 74, 83, 92, 93, 96.)

The book makes no claim to be strictly scientific, quite the contrary indeed; but it does criticize some aspects of scientific method. Some reviewers seem to be so numbed by their devotion to the prestige of science that they cannot practice even the simpler norms of scientific conduct in reporting a book of this sort.

BAKER BROWNELL

Northwestern University

COMMENT ON KANE'S ARTICLE ON "PROTESTANT-CATHOLIC TENSIONS"

To the Editor:

The conclusions drawn by John J. Kane, "Protestant-Catholic Tensions," October 1951 issue of the *American Sociological Review*, do not seem to be well supported. Last year, I made a content analysis of the favorable, unfavorable, and neutral articles written about Catholics in the *Lutheran Companion* and the *Christian Century*, and about Protestants in *America* and *Commonweal*. This was done for every third year in its entirety from 1925 to 1949, except in the case of the *Lutheran Companion* which was not available after 1940. From this experience, certain comments may be made in reference to Kane's article:

(1) One magazine from each group is not representative. For instance, in the Smith-Hoover presidential race of 1928, the *Lutheran Companion* was much more concerned about a Catholic becoming president than was *Christian Century*. What is an important issue to one Protestant magazine may not be to another. Therefore, when Kane attempts to generalize from the *Christian Century* to all Protestants and from *America* to all Catholics, it is unrealistic.

(2) *America* represents the organized Catholic Church in the United States. It is published by the Jesuits, whose international Catholic bonds are well recognized. *Commonweal* would have been a better choice, supposing one decided to use only a single Catholic magazine.

(3) The time span is inadequate. It is too short to reveal any important trend and is skewed by the enclosure of a world war. Also, Kane's facts show that for the three half-year periods used, the critical items in the *Christian Century* numbered fifteen, fifteen, and forty-two, respectively. For the same time span (1939, 1944, and 1949), *America* revealed critical items toward the Protestants in eight, three and fourteen cases, respectively. From this, Kane concludes that the Catholic-Protestant tension is increasing. This seems, to the writer, not to be altogether true. *Christian Century*

did show an increase between 1944 and 1949, but not from 1939 to 1944. *America* showed an actual drop from 1939 to 1944, although the number of articles from 1944 to 1949 did increase. Therefore, Kane's "trend" consists of only two chronological elements.

(4) The writer's own study of the problem has shown that there is no random assortment of critical articles into time spans. That is, the first six months of the year may record five critical articles. The last six months may include ten. It is a function of single issues and not necessarily a reflection of any rising or falling in the latent Catholic-Protestant tension. This casts serious doubt upon the value of Kane's sampling procedures.

(5) To include the percent of the total articles which are critical, without including the percentage of the total articles which are favorable, is not altogether fair. For instance, in *Commonweal* for the years 1943 to 1946, the articles against Protestants went up from one to three. Still, the favorable articles went up from zero to four. Using Kane's method of presentation, this entire picture would be distorted.

In short, Kane's sampling procedures appear to be rather inadequate. The conclusions drawn from his survey, then, are largely unsupported.

GORDON D. ALSTON

University of Minnesota

COMMENT ON SJOBERG'S ARTICLE, "ARE SOCIAL CLASSES IN AMERICA BECOMING MORE RIGID?"

To the Editor:

Professor Sjoberg's article: "Are Social Classes in America Becoming More Rigid?" (December 1951 issue) was both timely and provocative. It raised some interesting questions, of which its author seemed well aware: (1) Are the traditional criteria of class status being supplanted by new ones? (Cf. Rosenfeld's "Social Stratification in the 'Classless' Society" in the same issue.) (2) To what extent were pressures exerted by organized labor, together with welfare statism, since the 1930's, responsible for growing vertical mobility? (3) With respect to the long-term trend, what might be the economic impact upon our class structure if we had no military or foreign aid program to help dispose of the surplus output of our enormous productive machine? (4) In the event of a severe depression, would the host of unemployed intelligentsia form the basis of a new power-seeking elite or fuse with labor groups in self-defense? (5) Despite striking progress achieved by Negroes during the past 20 years, isn't their *caste* position alone enough to explode the myth of the "classless" society? Fortunately, also, Mr. Sjoberg was careful to suggest that the table on page 780 might be open to the criticism of "card-stacking."

PHILIP M. SMITH

Central Michigan College

OFFICIAL REPORTS AND PROCEEDINGS



AUDITOR'S REPORT

For the year ended November 30, 1950

February 8, 1952.

Executive Committee,
The American Sociological Society,
Washington Square,
New York, N. Y.

Gentlemen:

In accordance with instructions, we have examined the financial records of The American Sociological Society for the fiscal year ended November 30, 1951. We submit herewith the following exhibits:

Statement of Cash Receipts and Disbursements for the fiscal year ended November 30, 1951.....	Exhibit "1"
Inventory of Securities Examined as at November 30, 1951.....	Exhibit "2"

The accounting system of the Society is limited to a cash receipts and disbursements basis, only cash journals being used to record financial transactions. Verifications in connection with the Society's assets (other than cash and security investments), liabilities and capital have been omitted. The only cash receipts confirmed by reference to outside sources were dividends on stocks and Bank Interest Income. We made tests to ascertain that membership dues, Review subscriptions and sales, Review advertising and

other types of receipts were properly entered in the cash receipts journal, and that all receipts recorded therein were properly deposited in the banks. In addition, we tested the receipts from members for subscriptions to other journals to the disbursements made to the affiliated Societies therefor.

In our opinion, subject to the comments contained in the preceding paragraph, the Statement of Cash Receipts and Disbursements (Exhibit 1) presents fairly the cash transactions of The American Sociological Society for the fiscal year ended November 30, 1951. The balance of Cash in Banks as at November 30, 1951, totaling \$10,609.65, as shown in Exhibit 1, was confirmed directly to us by the depositories. We made a physical count on December 20, 1951 of the stocks and bonds listed in the Inventory of Securities Examined (Exhibit 2); the values shown for securities purchased subsequent to November 30, 1948 are stated at cost, whereas the values shown for securities acquired prior to that date are stated at values obtained from previous Auditors' reports.

We wish to express our appreciation of the courtesies extended to us by the Executive Officer during the course of our examination.

Respectfully submitted,

KING AND COMPANY
68 William Street
New York 5, New York

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EXHIBIT 1
THE AMERICAN SOCIOLOGICAL SOCIETY

STATEMENT OF CASH RECEIPTS
AND DISBURSEMENTS

FOR THE FISCAL YEAR ENDED
NOVEMBER 30, 1951

	Cash Receipts	Cash Dis- bursements	Net	
			Receipts	Dis- bursements
<i>Income and Expense Items:</i>				
Membership Dues:				
Active and Associate	\$20,150.35	\$ 129.50		
Joint	75.00	.....	
Student	5,621.50	.....	
Donor	31.98	.....	
Life	80.00	.....	
	<u>\$25,958.83</u>	<u>\$ 129.50</u>	\$25,829.33	
American Sociological Review:				
Subscriptions	\$ 7,214.56	\$ 46.25		
Sales of back issues	568.29	3.00		
Advertising income	4,920.29	34.98		
Printing and mailing costs	.....	18,807.99		
Clerical salaries—editor	.....	2,375.00		
Clerical salaries—office	.....	2,250.00*		
Editor's expense	.....	517.62		
Miscellaneous expenses	.....	1,345.00*		
	<u>\$12,703.14</u>	<u>\$25,379.84</u>		\$12,676.70
Employment Bulletin:				
Payments for listing	\$ 156.05	\$ 1.05		
Clerical salaries	.....	400.00*		
Miscellaneous expenses	.....	600.00*		
	<u>\$ 156.05</u>	<u>\$ 1,001.05</u>		845.00
Directory:				
Sales	\$ 172.48	\$		
Advertising income	319.23	.....	
Printing and mailing costs	.....	2,396.53		
Clerical salaries	.....	50.00*		
	<u>\$ 491.71</u>	<u>\$ 2,446.53</u>		1,954.82
Index:				
Sales	\$ 2,547.64	\$ 7.60		
Advertising income	431.39	.....	
Printing and mailing costs	.....	2,877.12		
	<u>\$ 2,979.03</u>	<u>\$ 2,884.72</u>	94.31	
Bulletins:				
Sales	\$ 123.62	\$ 1.00		
Printing and mailing costs	.....	811.64		
Clerical salaries—editor	.....	60.00		
Clerical salaries—office	.....	100.00*		
Editor's expense	.....	30.00		
Miscellaneous expenses	.....	40.00*		
	<u>\$ 123.62</u>	<u>\$ 1,042.64</u>		919.02
New Addressograph Plates:				
Costs	\$	\$ 244.61		\$ 244.61

* Allocated portion of office salaries and expenses.

EXHIBIT 1—Continued

THE AMERICAN SOCIOLOGICAL SOCIETY

STATEMENT OF CASH RECEIPTS
AND DISBURSEMENTSFOR THE FISCAL YEAR ENDED
NOVEMBER 30, 1951

	Cash Receipts	Cash Dis- bursements	Net	
			Receipts	Dis- bursements
Annual Meeting:				
Program advertising income	\$ 1,270.92	\$		
Program printing and mailing costs:				
Preliminary	.....	1,176.01		
Final	.....	619.47		
Book exhibit	987.00	24.00		
Banquet	751.50	1,347.25		
Clerical salaries and miscellaneous expenses	12.04	358.86		
Editor's travel	.....	100.00		
	<u>\$ 3,021.46</u>	<u>\$ 3,625.59</u>		604.13
Committees:				
Administrative	\$	\$ 251.52		
Research	.....	236.56		
Nominating	.....	424.46		
Other	.....	13.50		
	<u>\$</u>	<u>\$ 926.04</u>		926.04
Office:				
Executive Officer's salary—part-time	\$	\$ 3,000.00		
Clerical salaries	.....	4,270.51		
Rent	.....	360.00		
Stationery, printing, postage, telephone and telegraph, etc.	.....	4,920.74		
Expenses reimbursed by others	1,146.50	.....	
	<u>\$ 1,146.50</u>	<u>\$12,551.25</u>		11,404.75
Miscellaneous:				
Dividend income	\$ 281.75	\$		
Bank interest income	82.56	.....	
Audit fee	.....	225.00		
Dues to other societies (ISA, ACLS)	.....	186.15		
Bank charges	.....	10.82		
Miscellaneous expenses	.....	10.98		
	<u>\$ 364.31</u>	<u>\$ 432.95</u>		68.64
Other Items:				
Stock right redemption proceeds	\$ 6.48	\$		
Subscriptions to other Journals for members	2,756.65	2,721.65		
Certificate of indebtedness redeemed	.....	10.00		
Bank transfers	4,958.79	4,958.79		
	<u>\$ 7,721.92</u>	<u>\$ 7,690.44</u>	31.48	
Total Cash Receipts and Disbursements for fiscal year ended November 30, 1951	<u>\$54,666.57</u>	<u>\$58,355.16</u>		<u>\$ 3,688.59</u>
Cash in Banks:				
Balance—November 30, 1950	\$17,395.67			
Add—Deposit in transit	870.98			

OFFICIAL REPORTS AND PROCEEDINGS

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EXHIBIT 1—Continued

THE AMERICAN SOCIOLOGICAL SOCIETY

STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS

FOR THE FISCAL YEAR ENDED
NOVEMBER 30, 1951

		Cash Receipts	Cash Dis- bursements	Net	
				Receipts	Dis- bursements
	\$18,266.65				
Less: Outstanding checks	5,380.44				
	\$12,886.21				
Less: Withheld income taxes	216.30	12,669.91			12,669.91
Balance—November 30, 1951	\$10,609.65				
Add: Deposit in transit	266.07				
	\$10,875.72				
Less: Outstanding checks	1,625.45				
	\$ 9,250.27				
Less: Withheld income taxes	268.95		8,981.32		\$ 8,981.32
		\$67,336.48	\$67,336.48		

EXHIBIT 2

THE AMERICAN SOCIOLOGICAL SOCIETY

INVENTORY OF SECURITIES EXAMINED

AS AT NOVEMBER 30, 1951

Description	Type	Date Acquired	Face amount or number of shares	Book Value	Market Value
Bonds:					
United States Savings	Series F due 6-1-57	June 1945	\$2,000.00	\$ 1,480.00	\$ 1,644.00
United States Savings	Series F due 8-1-62	August 1950	8,000.00	5,920.00	5,936.00
Stocks:					
American Telephone and Tele- graph Company	Capital	May 1932	3	296.00	471.75
Chesapeake and Ohio Railway Company	Common	July 1945	10	526.58	326.25
Consolidated Natural Gas Company of Delaware	Capital	December 1943	1	.....	57.00
Standard Oil Company of New Jersey	Capital	February 1940	12	533.56	837.00
Union Pacific Railroad Company	Common	1945 and 1948	20	1,313.75	2,000.00
United States Steel Corporation	7% Cumulative Preferred	1938 and 1939	5	532.41	700.00
TOTALS				\$10,602.30	\$11,972.00

1952 ANNUAL MEETING

The Committee on Local Arrangements for the Atlantic City meeting, September 3-5, consists of George Hugarir, Chairman, of Temple

University, with Kenneth E. Burnham, Temple University, and S. L. Ricards, William M. Kephart, Marvin Bressler, Oscar Glantz, Michael Lalli, and Ralph England, all of the University of Pennsylvania.

NEWS AND ANNOUNCEMENTS



The Institute of Social Research. The International Sociological Seminar will be held at Marston Hill, Mullsjö, Sweden, from August 4 to 20, 1952. The main topics are: Scandinavian Family Sociology; The Chinese Family in Chinese Society; Protestantism, Nationalism, and Socialism; Mass Communications; and Psychoanalysis for Sociologists. Instruction will be given in English, German, or the Scandinavian languages, according to the student's preference. A limited number of work scholarships are available on application to The Director, International Sociological Seminar, Marston Hill, Mullsjö, Sweden, U.S.E.

American Sociological Society. The Edward L. Bernays Foundation Radio-Television Award, a \$1,000 U. S. Government bond, will be presented by the American Sociological Society to the individual or group contributing the best piece of research on the effects of radio and/or television on American society.

Presentation of this Award will be made at the annual meeting of the American Sociological Society in 1952.

Any individual or group wishing to compete for the Award must submit in duplicate a report on the research *on or before June 15, 1952*.

Any research study, whether published or unpublished, will be eligible for consideration. Research not fully completed for which a preliminary report is available may be submitted, although research for which *no* findings are available at the time of its submission will not be considered for the Award.

Research need not bear upon both radio and television, but may be concerned with either one or both of these media of communication.

The report must present:

- both original research findings
- and interpretation of these findings in the light of their broader social implications

The Committee of Judges will evaluate research studies on the basis of the competence with which they have been designed and carried out and the significance of their findings, with special reference to their implications for social policy and social action.

Contestants are encouraged to submit reports on research that meets the foregoing criteria irrespective of the scope or cost of the project.

All reports submitted in this competition should be sent as far in advance of the closing date, June 15, 1952, as is feasible to the Chairman of the Committee of Judges, F. Stuart Chapin, Department of Sociology, University of Minnesota, Minneapolis 14, Minnesota.

Inquiries for further information should be addressed to the Executive Officer of the American Sociological Society, New York University, Washington Square, New York 3, N. Y.

The Award has been made possible by a gift to the American Sociological Society by the Edward L. Bernays Foundation, founded by Edward L. Bernays, public relations counsel.

Society for the Study of Social Problems.

Persons interested in submitting papers to be read by title, in digest form, or as a whole, at the September, 1952, meetings of the Society for the Study of Social Problems in Atlantic City are invited to submit titles to members of the program committee by May 1 or as soon thereafter as possible. Members of the program committee are: Reinhard Bendix, University of California; Carroll Clark, University of Kansas; Edgar Schuler, Wayne University; and Jessie Bernard, Pennsylvania State College.

Pacific Sociological Society. A meeting of the Northern Division was held at Reed College on January 19, 1951. The program consisted of informal discussions on the topics: "Should Teaching and Research be Problem-Oriented or Theory-Oriented?"; "The Undergraduate Curriculum in Sociology"; and "Organization of Curriculum as Related to Size of Department." Members of the discussion panel were: John James, University of Oregon; Frank Parks, Oregon State College; Edward Taylor, Linfield College; Howard Jolly, Reed College; Robert E. L. Faris, University of Washington; and John Rademaker, Willamette University.

Barnard College. S. Stansfeld Sargent, Social Psychologist from Barnard College, is spending his sabbatical leave this year in Ventura, Calif. where he is studying the values found among members of differing socioeconomic groups. He is aided by a grant from the Columbia University Council for Research in Social Sciences.

Boston University. Dr. Albert Morris, professor of sociology, will lecture on penology at the University of Melbourne, Australia.

Central Michigan College. Dr. Bernard M. Meltzer began his work in September as Associate Professor of Sociology. More recently a staff member at McGill University, he was formerly at the University of Chicago. He will be teaching new courses in Social Psychology, Courtship and Marriage, and Intergroup Relations. Assistant Professor Harry Doby will continue to teach

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both Criminology and Juvenile Delinquency, while Professor Philip Smith will handle the graduate courses in Family and Juvenile Delinquency.

Columbia University. The Review has been informed that Professor Joseph P. Chamberlain, Professor of Public Law and a member of the Society since 1915, died on May 21, 1951.

Emory University. Assistant Professor James W. Wiggins is acting chairman of the Department of Sociology during the leave of absence of Dr. Allen D. Albert, Jr. Dr. Albert is Director of Public Relations for the Georgia Division of the Lockheed Aircraft Corporation.

Mr. Jerry W. Combs, Jr. of Columbia has been appointed assistant professor of sociology for the current year.

Dr. Earl Brewer of the Candler School of Theology is teaching rural sociology and the sociology of religion.

Other members of the staff are Associate Professor John A. Griffin and Mr. James T. Wiley, Jr.

Fisk University. Dr. Preston Valien, Chairman of the Department of Social Sciences, has been asked to assist in the preparation of achievement tests for the Basic Professional Nursing Program, a project of the National League of Nursing Education.

In cooperation with the Department of Foreign Languages, the Social Science Department is studying a program designed to strengthen the competence of social science students in foreign languages.

The Sociology Club had Dr. Inez Adams, Visiting Lecturer in Anthropology, as speaker for its first meeting. Dr. Adams discussed the results of her research during the past summer, on race relations in Trinidad, British West Indies.

During November, the Department had several visitors from foreign areas. These included Mr. A. Fuad El Shiltawi, Supervisor of the Egyptian Province of Garbia; Mr. Jaya Deva Das, Divisional Welfare Officer, Patna-Bihar, India; and Mr. Mohamed Ahmed Kamel, Director of Resettlement Administration, Fellah Department, Egypt who met with graduate seminars in sociology.

Kansas Wesleyan University. Starting in the fall semester, the Department of Sociology began to offer a course in Rural Sociological Theory. The Department offers a major in Rural Sociology and the establishment of a Rural Life Institute is being jointly planned by the Department and the Division of University Services.

Louisiana State University. Dr. Homer L. Hitt of Louisiana State University and Dr. T. Lynn Smith of the University of Florida have completed the manuscript for the comprehensive demographic treatise, *THE PEOPLE OF LOUISIANA*. The Louisiana State University Press has set the publication date of this volume for early 1952. Dr. Hitt also contributed two original essays and collaborated on several other papers in the recently released Dryden Press book by T. Lynn Smith and

C. A. McMahan, entitled *THE SOCIOLOGY OF URBAN LIFE*. In his position of Secretary of the Agricultural Economics and Rural Sociology Section of the Association of Southern Agricultural Workers, Dr. Hitt has had the responsibility of working up the program for the 49th Annual Convention to be held at Atlanta, Georgia, February 3, 4, 5, 1952. Dr. Hitt has accepted an invitation to participate in the 2nd Annual Southern Conference of Gerontology to be held at the University of Florida on January 28 and 29, 1952. He will present a paper entitled "America's Aged at Mid-Century: Number, Distribution, and Change" at this meeting.

Dr. Rudolf Heberle, serving this year as President of the Southern Sociological Society, recently completed a volume entitled, *SOCIAL MOVEMENTS*, published in late 1951 by Appleton-Century-Crofts, Inc. In collaboration with Mr. Dudley S. Hall and under the auspices of the Displaced Persons Commission of Louisiana and the Institute of Population Research at Louisiana State University, Dr. Heberle also brought out a monograph entitled, *NEW AMERICANS: A STUDY OF DISPLACED PERSONS IN LOUISIANA AND MISSISSIPPI*. His paper, "Principles of Political Ecology," has been selected for publication in *Soziologische Forschung in Unserer Zeit* in honor of Leopold Von Wiese's 75th anniversary. Heberle also has been appointed visiting professor at the University of North Carolina during the first term of the 1952 Summer School.

The third edition of Dr. Marion B. Smith's popular text, *SURVEY OF SOCIAL SCIENCE*, has recently been released by Houghton Mifflin Company. Currently, Dr. Smith is serving as President of the Southwest Council on Family Relations, Vice-President and Program Chairman of the Southwestern Sociological Society, and Chairman of the Section on teaching of Sociology of the Southern Sociological Society. In the latter capacity Dr. Smith is heading up a survey of the programs of Southern Colleges and Universities for the teaching of marriage and family relationships.

Dr. Alvin L. Bertrand has recently returned from Texarkana, Arkansas where he participated in the meeting of the Southwestern Land Tenure Committee. He discussed the effects of Agricultural Mechanization on tenure arrangements in the region at this gathering. Dr. Bertrand has been appointed to serve as Chairman of the Social Science Section of the Louisiana Academy of Sciences for the current year. Dr. Bertrand and Dr. Paul H. Price are both active in the rapidly expanding English Language and Orientation course program for Foreign Students at Louisiana State University.

University of Louisville. Dr. C. H. Parrish, for many years professor of Sociology at Louisville Municipal College has been transferred to the Sociology Staff of the Arts and Science College.

Dr. Ray Birdwhistell is on leave of absence to teach at the School of Advanced and Specialized Studies of the Foreign Service Institute connected with the Department of State. His work will

consist in helping train specialists to be used in the Point Four Program.

Dr. Frank Vicroy is offering a new course in Industrial Sociology.

University of Michigan. Professor Amos H. Hawley will assume the duties of Chairman of the Department beginning the Spring semester of 1952. He replaces Professor Robert Cooley Angell, who has held the Chairmanship for eleven years. Professor Angell asked to be relieved from his position in order to devote more time to teaching and research.

Dr. David F. Aberle, at present visiting associate professor at the Walter Hines Page School of International Relations, Johns Hopkins University, has been appointed Associate Professor of Sociology and Anthropology, to begin in September 1952. He will teach courses in the field of Personality and Culture, and in Social Organization.

Dr. Josephine J. Williams, at present Assistant Professor of Sociology at the University of Chicago, has been appointed Assistant Professor of Sociology, to begin in September, 1952. Dr. Williams will be in charge of the training in quantitative methods in the department.

North Dakota Agricultural College. Courtney B. Cleland, who took leave to accept a Ford faculty fellowship, spent most of the year in field work in Williams county, N. D. He has recently published articles on a Minnesota grain cooperative and on the largest rural school reorganization in North Dakota.

All social sciences are now grouped in one department. Future plans call for curriculum revision, including an interdisciplinary course on the Great Plains region.

The college is now authorized to grant the Master of Science degree in social science. New impetus for social research has been furnished by the North Dakota Institute for Regional Studies, established in 1950. Interested students may write the executive secretary, Fargo, N. D.

Northwestern University. Thomas D. Eliot has returned from a year in Norway on a Fulbright fellowship and has resumed his teaching duties.

Robert F. Winch has received a grant-in-aid from the National Institute of Mental Health to finance his study of the theory of complementary needs in mate selection. Oliver J. B. Kerner, Virginia Ktsanes, and Sandra Oreck have been appointed research associates on this project. Mr. Kerner has also been appointed instructor in the department and is teaching one course in the Winter Quarter. Professor Winch's book *THE MODERN FAMILY* was published by Henry Holt in January.

Kimball Young, who was awarded a Guggenheim fellowship last spring, has a leave of absence for the winter and spring quarters. He is located at the Huntington Library and is working on his book on Mormon polygamy. A complete revision of Professor Young's *PERSONALITY AND PROB-*

LEMS OF ADJUSTMENT was published in February.

Last summer Paul K. Hatt participated in the Inter-University Seminar on Stratification at Ohio State University. This seminar was sponsored and supported by the Social Science Research Council. The Free Press has recently published a *READER IN URBAN SOCIOLOGY*, edited by Paul K. Hatt and Albert J. Reiss, Jr. Professor Hatt is acting chairman of the department during Professor Young's absence.

Thomas Ktsanes, who taught last year at Indiana University, has received a research fellowship from the United States Public Health Service.

In conjunction with the departments of Anthropology and Psychology, the department of Sociology sponsored a two-day conference in November, dealing with the problems of interdisciplinary courses in the social sciences. Participants from sixteen colleges and universities took part in the discussion.

The Carnegie Corporation has made a five-year grant of \$100,000 to Northwestern University for establishment of an African Study Center and the continuation of the African Area Program. The Center will carry on and encourage African research, maintain a library of Africana, train personnel, disseminate information concerning the continent, and help coordinate research activities in the field.

The new Center will be directed by Melville J. Herskovits, chairman of the department of anthropology, with the aid of a committee consisting of members from social science departments.

University of Pennsylvania. A Behavioral Research Council, headed by the Dean of the Graduate School of Arts and Sciences, has been formed to administer the Ford Foundation grant to the University. E. P. Hutchinson, who was chairman of the committee that prepared the University's program for use of the grant, is a member of the Council. Anthony F. C. Wallace, who received his Ph.D. in anthropology in 1950 and who has been an instructor in the Sociology Department since that time, has been appointed Research Secretary of the Council. The Council, which is establishing a center for research in the social sciences, has also sponsored an interdepartmental research seminar on technological change and social adjustment. This project is under the direction of Thomas Cochran of the History Department and Dorothy Thomas of the Sociology Department, and is studying changes in personality patterns and career lines in an urban community near Philadelphia.

E. P. Hutchinson has been reappointed chairman of the Social Science Research Council's Committee on Social Science Personnel, which awards the Council's research training fellowships.

Thorsten Sellin has returned to teaching and has again assumed the chairmanship of the Department. He has been serving as Secretary General of the International Penal and Penitentiary Commission, Berne, Switzerland, since January 1950. He has been appointed by President Truman as a representative of the United States to participate

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in the program for the Prevention of Crime and the Treatment of Offenders undertaken by the United Nations.

J. P. Shalloo is serving as Co-chairman of the Crime Commission of Philadelphia.

Purdue University. Reuben Hill, of the University of North Carolina, was guest lecturer before classes and a special seminar on family research on November 29, 1951.

San Francisco State College. A "Middle East Seminar", is to be conducted during the period July 1-August 15, 1952. Under the leadership of Dr. Louis Wasserman, Associate Professor of Philosophy and Government, the Seminar group will visit Greece, Turkey, Syria, Lebanon, Egypt, and Israel. Air travel will be used throughout. The principal function of the Seminar will be to study the social, political, and economic conditions of the area at first hand. Interviews will be held with leading spokesmen in each country, and these will be supplemented by visits to schools, public projects, farms, refugee camps, historic shrines, and the like.

Six units of upper-division credit may be earned by members of the Seminar. Costs of the entire tour are computed on a cooperative basis. Address inquiries and applications to Dr. Louis Wasserman, San Francisco State College, San Francisco, California.

Syracuse University. The Maxwell Graduate School of Citizenship and Public Affairs has published a study of "Opportunities for Federally Sponsored Social Science Research," which describes in specific terms the programs, fields of interest, and project areas covered by government agencies that sponsor social science research. It also gives details on how individuals and universities can go about securing federal sponsorships for research projects and discusses the more significant problems they will have to face should they secure sponsorship.

Copies of the publication are available to members of the American Sociological Society from the Washington Research Office of the Maxwell School, 1785 Massachusetts Avenue, N. W., Washington 6, D.C.

University of Tennessee. During the years 1883-1885, *The Sociologist*, a monthly journal, was published in Knoxville, Tennessee. Each issue contained a selection, several pages in length, from the writings of Herbert Spencer, Thomas H. Huxley, Lester F. Ward, Henry George, or other social thinker of the period. Each issue contained, also, a section by the editor titled "Studies in Sociology." These studies would currently be classified as social philosophy, but the editor strongly advocated a scientific sociology. He recommended that sociologists turn their attention "from the diffusion of impractical theories, to the collection of facts, and to so systematize their knowledge that they will be able to speak as positively as Mathematicians or Chemists. . . ." The issues

were of uniform style and size (sixteen pages, 6" x 9") and an index was provided in the last issue of each annual volume.

The editor and publisher of the journal was Albert Chavannes (1836-1903). As a boy he came to the United States with his parents who were French-Swiss immigrants. At various times he engaged in the occupations of farming, dairying, and manufacturing "wooden reversible horse-drawn hay rakes." It is reported that Chavannes lived frugally and prospered modestly. He was the uncle of Edward T. Sanford, justice of the U. S. Supreme Court, and was himself an unsuccessful candidate for Congress. Most of his writing, including several books, was done in his later years. *The Sociologist* was carefully prepared and indicates wide reading and thought on the part of the editor. However, information is not readily available as to his education or the source of his interest in sociology. The journal was discontinued in December, 1885, for personal reasons, and because it was believed that "our journal has answered the purposes for which it was commenced. . . ."

The Sociologist was published during the period (1881-1888) that William Isaac Thomas was a student and instructor in classics at the University of Tennessee. At this time Knoxville was a city of about 10,000 population. Though Albert Chavannes had no connection with the University, it seems probable that in a city of this size the University faculty would have been acquainted with the journal. One may speculate upon its possible influence in turning W. I. Thomas' attention in the direction of sociology.

Thirty-three of the thirty-six issues of *The Sociologist* (all except the first three) have recently been discovered by Mrs. Joan E. Wallace, graduate student. It seems possible that *The Sociologist* was the first sociological journal published in the United States. Information which will establish whether this is true, as well as information about W. I. Thomas' residence at the University of Tennessee, will be appreciated. Communications should be addressed to John B. Knox, Director, Bureau for Sociological Research, The University of Tennessee, Knoxville.

Tulane University. The Department of Sociology and Anthropology is in the process of completing its preparations for a program leading to the Ph.D. degree in sociology. This program was inaugurated during the present academic year, and a full schedule of course offerings will be available for the fall semester of 1952-1953 and from that time on. Urbanism and urbanization will provide the unifying theme of the program, and the major areas of concentration will be social organization and social psychology. Supporting sequences of courses and seminars will be available in social theory, methodology, anthropology, and human ecology and demography.

Closely integrated with the program is the research work of the new Urban Life Research Institute directed by John H. Rohrer. Five members of the department are participating in its research activities at the present time: Munro

Edmonson, Roy G. Francis, Harlan Gilmore, Robert Lystad, and Robert C. Stone. Projects under way are concerned with the social structure of the work situation, levels of aspiration and promotion, worker mobility, and research methodology.

University fellowships are available as well as a number of departmental research assistantships ranging in value from \$1000 to \$1500 annually. Inquiries should be directed to the Dean of the Graduate School, Tulane University, New Orleans 18, La.

Professor Logan Wilson has left the department to become academic vice-president of the University of North Carolina. Professor Forrest E. LaViolette is serving as chairman of the executive committee which now heads the department. William L. Kolb has been promoted to the rank of professor. He has completed part of his study of the relations between social theory and values, and will participate this summer in a seminar on social integration at the University of Michigan. Arden R. King is on leave until September 1952, and is studying the social and cultural changes in Coban, Alta Verapaz, Guatemala, on a grant from the Wenner-Gren Foundation. During his absence Marvin W. Opler will be a member of the staff as Visiting Associate Professor of Anthropology. Leonard Reissman, who is completing his graduate work at Northwestern University, is a

new member of the staff, teaching courses in urban sociology and social stratification. The Middle American Research Institute has completed Volume I of *Middle American Research Records* consisting of 16 monographs.

Virginia Polytechnic Institute. W. E. Garnett, pioneer rural sociologist of our Agricultural Experiment Station has been honored as "Man of the Year in Service to Virginia Agriculture" by the *Progressive Farmer* magazine published at Raleigh, N. C., and featured in its January issue.

Donald Fessler, of Iowa State College, has been appointed associate extension sociologist of our Agricultural Extension Service to work with extension sociologist, B. L. Hummel.

W. W. Eure, rural youth specialist, is conducting an educational and recreational program with 121 active older rural youth groups throughout Virginia.

Yale University. The tenth annual session of the Summer School of Alcohol Studies will take place from July 7 to August 1, 1952, under the direction of Selden D. Bacon. Requests for information may be addressed to The Summer School of Alcohol Studies, Laboratory of Applied Physiology, Yale University, 52 Hillhouse Avenue, New Haven, Connecticut.

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BOOK REVIEWS



Toward A General Theory of Action. Edited by TALCOTT PARSONS and EDWARD A. SHILS, with the collaboration of EDWARD C. TOLMAN, GORDON W. ALLPORT, CLYDE KLUCKHOHN, HENRY A. MURRAY, ROBERT R. SEARS, RICHARD C. SHELDON, and SAMUEL A. STOFFER, Cambridge, Massachusetts: Harvard University Press, 1951. xi, 506 pp. \$7.50.

This is a report on the progress made by a group of nine outstanding scholars who worked together for several years in an attempt to systematize knowledge in the social sciences and to develop a general theory of human behavior. The project was made possible by grants from the Carnegie Corporation and from Harvard University's Laboratory of Social Relations. Despite the modest title of the book, Parsons and Shils suggest in the Preface that this "carefully considered" and "collaborative product" is a "major movement . . . whose significance to the future of social science far transcends the contribution" of any one group of collaborators or of the particular disciplines they represent.

The book is organized as follows: Part 1, written jointly by all of the authors, contains a general statement of the theory of social action. Part 2, by Talcott Parsons and Edward A. Shils, outlines the details of the theory, with special emphasis on the organization of the values around which action is oriented, on personality as a system of action, and on the social system as it is conceived within the theory. Part 3 is a very interesting psychological model developed by Edward C. Tolman for the analysis of behavior. Much of this is illustrated heuristically by the use of a symbolic notation, and it includes a number of hypotheses stated in mathematical terms for empirical test. Part 4 consists of a series of practical applications of the theory as developed by Gordon W. Allport, Clyde Kluckhohn, Henry A. Murray, Robert R. Sears, and Samuel A. Stouffer. This is stimulating material presented in a challenging and non-technical fashion by some of the leading researchers in social science.

The book attempts to do three things: (1) It presents a system of concepts of such general nature that the main content of existing social science can be subsumed under them. (2) It

presents a system for classifying and cross-classifying these concepts so as to systematize existing knowledge and, perhaps, to offer suggestions for further empirical investigation. (3) It therefore provides a basic conceptual and classificatory system—in essence, a proto-theory—upon which a mature, integrated, and unified theory of behavior may eventually be constructed.

The present theory presumes that action is directed toward the achievement of ends or goals; that in his efforts to attain these goals, the actor is oriented toward objects, including the self, other persons, and cultural symbols as objects; and that the actor's orientation occurs in three modes—the cognitive (as used previously by Tolman in his studies of instrumental learning), the cathectic (as used in the psychoanalytic sense), and the evaluative (the process by which the actor decides which of the various possible alternatives of action he should follow). The non-social and the social objects in a situation are relevant to behavior because they offer possible alternatives and impose limitations concerning the ways in which the actor can achieve his goals. The orientation of action around these objects entails selection on the part of the actor. Selection occurs as a result of (1) cognitive discriminations among the objects and their characteristics, (2) cathectic (positive and negative) responses to these objects according to their capacity for satisfying the actor's drives and need-dispositions; and, (3) evaluative judgements based on the cognitive standards of truth, the cathectic standards of appropriateness, and the moral standards of rightness. All action involves the operation of the cognitive, cathectic, and evaluative modes, but the degree of prominence of any one of the modes depends upon the given situation. Since actors, objects, and the modes of orientation provide the conceptual components of personality, culture, and social systems, it is possible to define the three latter categories in terms of the former. In addition, any action involves a pattern of selections with respect to five basic sets of dichotomous alternatives (effectivity-neutrality, self orientation-collectivity orientation, universalism-particularism, ascription-achievement, and specificity-diffuseness). When these dichotomies are cross-classified against

the modes of orientation and different types of objects, there results an elaborate scheme for the classification of action.

This extremely condensed version of the theory does not, of course, do justice to it, but it may give the reader some idea of the type of analysis used. As developed in the text, the discussion of the theory is intricately detailed, profusely qualified, and rich with suggestions for further conceptual analysis. Readers will recognize the influence of such authors as Pareto, Durkheim, Weber, Freud, Thomas, and Mead, as well as a number of contemporaries. Although it sounds new, the work has a vital and healthy tradition in social science. Anyone who fights his way through the maze of concepts can be assured that he will generally feel at home with the content of the argument, if not with its style—although, with respect to the latter feature, he may at times question the clarity and precision of the cumbersome terminology.

Some readers will challenge the voluntary action scheme, the interpretation of learning (chiefly Tolman's), the occasional use of psychoanalytic orientation, the restricted definition of culture, the non-operational concepts (goals, drives, need-dispositions), etc., but in the absence of a more precise specification of testable claims on behalf of the theory, it is perhaps best to defer these arguments. There are more fundamental issues which, we fear, may limit the practical utility of this theoretical framework.

There are, in the first place, a number of ambiguities and discrepancies in the argument which indicate that on some important particulars the authors have not come to an agreement. For example, Sheldon's "Observations on Theory in Social Science," Part 1, Chapter 2, contains specifications for definitions and classificatory systems which are more rigorous than those on which the argument in Part 2 is based. Similarly, Parts 3 and 4 contain specialized arguments which are largely independent of the theory as stated in Part 2, and these require separate analysis for which we do not have space here. For these reasons, the following comments apply primarily to Parts 1 and 2 of the text.

The main defect of the Parsons-Shils formulation is that it is not sufficiently explicit to be capable of a formal or technical evaluation. The "theory," as developed thus far, does not claim to generate formally derived and testable propositions (see page 234), but merely offers the promise that they are forthcoming. A theory which makes no testable truth-claims can only be evaluated in terms of clarity, precision, generality, and logical consistency. But it is obvious

that the classification of behavior, if not regulated by empirical considerations, is capable of almost endless refinement, and that any number of logically consistent classificatory schemes can be invented. Thus, the test of a theory is, in science, an empirical one, and in the absence of such a test, the theory must be accepted "on faith." If we were confident that the inability to test the theory of action is only temporary, the issue could be disregarded, but there is reason to believe that the theory requires some fundamental overhauling before it is likely to yield testable propositions.

If a theory of action is to be developed and communicated, then it is necessary that the terms "theory" and "action" be precisely defined. Common-sense definitions of theoretical concepts rarely are adequate. However, the present formulation consistently avoids precise and explicit definitions, the authors apparently preferring to convey meanings by implying common-sense definitions. Instead of a definition of "theory," its three major functions are given (p. 1): (1) It should aid in codification of knowledge. (2) It should be a guide to research. (3) It should facilitate the control of the biases of observation. That the implied definition is ambiguous seems obvious. Is scientific theory the only device available for codifying knowledge, generating hypotheses, and controlling bias? The answer depends on the definitions of knowledge, hypothesis, and bias—and common-sense definitions would hardly suffice if we desired an empirical answer to the question.

Similar ambiguity is observed in the definition of "social action." "The theory of action is a conceptual scheme for the analysis of the behavior of living organisms." (p. 53). "There are four points to be noted in this conceptualization: (1) Behavior is oriented to the attainment of ends or goals or other anticipated states of affairs. (2) It takes place in situations. (3) It is normatively regulated. (4) It involves expenditure of energy or 'motivation'." (p. 53). "This means that any behavior of a living organism might be called action; but to be so called, it must be analyzed in terms of the anticipated states of affairs toward which it is directed, the situation in which it occurs, the normative regulation . . . of the behavior, and the expenditure of energy or 'motivation' involved. Behavior which is reducible to these terms, then, is action." (p. 53).

The final statement in the above quotation is clearly redundant and circular, and this circularity causes the reader to wonder whether the preceding statements are definitions or propositions which are to be subjected

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to empirical test. Much of the difficulty encountered in reading the text is due to the failure of the authors to make a distinction between (1) statements which define terms and (2) statements which specify an expected or empirically verifiable relationship between things that are independently defined. If, for example, the statement that "behavior is motivated" is a hypothesis, then a test of it would require that certain "motives" be defined independently of certain "behaviors," and that the kind and degree of association between these two sets of phenomena be stated and empirically verified. If, on the other hand, the statement is a definition, then it requires that categories of motivation be specified in such a way that all possible behaviors would clearly and reliably fall into one or another of these categories. In the present instance the issue is not settled at any place in the text, and the reader is forced to make his own decision as to how the statements were intended. This, of course, does not facilitate clear and efficient communication.

The difficulties encountered in the definition of "theory" and "action" are compounded in the definitions of "anticipated state of affairs," "cognitive mode of orientation," "ca thesis," "drive," "need-disposition," etc., because these terms have more complex common-sense meanings. The authors apparently operate under the assumption that the concepts of science should be obvious and plausible to common-sense, and that the procedure of science is first to classify a mass of phenomena in descriptive terms and then later to develop hypotheses relating the classifications (see pp. 234-243). Dewey has shown that the types of problems which confront the theorist exert an influence on the definitions and classifications of his concepts—that definition and classification are problem oriented. And while Mach had earlier maintained that it is impossible to construct a testable theory out of concepts which are not operationally defined, recent developments in physical science—non-Euclidean geometry, relativity, and quantum mechanics, for example—have resulted in some important modifications of Mach's "positivistic requirement."

It is no longer required that concepts be derived from common-sense experience; they may indeed be products of mathematical and logical imagination. It is at the same time imperative, however, that they justify their existence by their capacity for producing verifiable propositions. Thus a theory is something more than a syntactical arrangement of concepts. Those of its concepts which are used in a veri-

fiable proposition must be related by rule to sense observations, if the proposition is to be tested. And the physical operations involved in identifying the referent of a concept are an integral part of the definition of the concept. As a consequence, a classificatory system, if it is to be used for producing testable propositions, must include operational definitions of some of its concepts. Finally, before a proposition can be tested, there must be agreement on the rules for interpreting the test. The popular works in physics, such as those of Einstein and Bridgman, indicate the potential importance of a modern conception of theory.

These critical comments are not intended to derogate this work. Its shortcomings are those of contemporary social science, and its tremendous virtue is in its frank—yet comprehensive and optimistic—efforts to reduce these shortcomings. The tedious labor involved in systematizing the concepts of social science cannot be wasted, and the book will help every reader to make progress in his own thinking. The issues it raises are crucial, and when solved, social science will have become truly systematic. The only purpose of the previous criticism is to suggest that the solution of these issues might be facilitated by a more harmonious incorporation of some of the basic principles of modern physical science into the framework of the theory of action, and that the earlier this occurs in the future development of this theory, the more easily this can be done. A great deal has been accomplished in the present study by the collaboration of social scientists. Perhaps a great deal more could be accomplished if this collaboration could be extended to include mathematical statisticians, logicians, and philosophers of science.

CLARENCE SCHRAG

University of Washington

The American Veteran Back Home. By ROBERT J. HAVIGHURST, WALTER H. EATON, JOHN W. BAUGHMAN and ERNEST W. BURGESS. New York: Longmans, Green and Co., 1951. xiv, 271 pp. \$3.50.

Toward the close of World War II, Waller, Vector, and a number of other students of human behavior wrote somewhat speculatively about problems of veteran adjustment which seemed just around the corner. Much that was written was based on the presumption of widespread and prolonged unemployment leading to increasing feelings on the part of veterans that they had given everything and received little or nothing in return. The dislocation or

distortion of careers and of personalities was rather generally anticipated.

For a variety of reasons, the veterans of World War II were reabsorbed into civilian life with far less disruption than most forecasters had envisioned. Moreover, as students or as workers, most veterans have exhibited performance levels not markedly changed by the war experience. This observation accords with the salient finding of the present volume, which, despite its title, relates to a population of 416 veterans drawn from a single town in Illinois—"Midwest" in the present volume, "Elmtown" in Hollingshead's earlier study of the town's adolescents.

Roughly a third of the book is given over to a description of the men who left Midwest to enter the service and the feelings of those whom they left behind. The familiar pattern of social class allocation used by Warner and his associates is here presented with commendable brevity since it is not the focus of the study; nevertheless it is the chief conceptual tool used in examining the readjusting veteran.

Job opportunities in Midwest and patterns of job adjustment by the returned veterans are illustrated by fragmentary interview materials. As in other parts of the study, a major difficulty seems to be the fact that bits of data were picked up here and there without adequate time sampling to permit an analysis of the process of readjustment.

The most significant contribution of the book, in this reviewer's opinion, is the chapter entitled "Adjustment Four Years After: A Comparison of Veterans and Non-Veterans." Three small groups (24 each) of married veterans, single veterans and married non-veterans, all of about the same age and roughly matched according to social status as of 1941, are compared as of 1949 with reference to three areas of interest: (1) socioeconomic mobility, (2) personal adjustment, and (3) acceptance of community. The three groups are found to have made slight and almost identical gains in socioeconomic status, although veterans had made more frequent job changes. The groups differed little in personal adjustment—defined in terms of social mobility, potential mobility, interest in community affairs, family adjustment, job satisfaction, state of health and financial assets—although non-veterans tended to have slightly superior scores on most items. Veterans and non-veterans did not differ appreciably with reference to the index of acceptance of community.

The pre-adult veteran is briefly examined with the conclusion that his post-service life is more impressive in its continuity with pre-

induction trends than in any changes brought about by service.

On the whole the volume fails either to tie in with work done by others or to follow up systematically the implications of the interview materials presented. Thus, a number of quotations relating to restlessness, impatience and irritability are presented to characterize newly returned veterans, but no attempt is made to study the "decompression process" or the subsequent carry-over of such tendencies into interpersonal relations with wives, children, associates on the job, etc. Instead, very general and largely subjective ratings of "adjustment" are used, and these markedly minimize interpersonal relations. Again it is suggested that many of the younger veterans picked up "bad habits" in the service—drinking and gambling habits for example—yet no attempt is made to assess the consequences of such new habits and attitudes. The reader is simply told that in general the returned veterans decided to "conform with the needs and expectations of the particular social group to which they belonged." The crucial question of how "belonging" was defined or worked out by returned veterans is never mentioned. The authors' preoccupation with social class seems to have caused them almost completely to disregard the primary group relations of veterans and non-veterans.

JOHN A. CLAUSEN

National Institute of Mental Health
U. S. Public Health Service

Adaptability and Communication in Marriage: A Swedish Predictive Study of Marital Satisfaction. By GEORG KARLSSON. Uppsala: Almqvist & Wiksells Boktryckeri Aktiebolag. 1951. 215 pp. No price indicated.

The sub-title gives a better clue than does the title to the nature of the study under review. Despite the fact that a considerable amount of attention is devoted to theories of marital interaction in general and to the topics of adaptability and communication in particular, this turns out to be a neatly done Swedish version of the studies by Terman and by Burgess and Cottrell.

Although Karlsson concedes that his is not a probability sample, the sample he did obtain is undoubtedly more representative of his population than are the samples of previous studies in this field. The sample consists of 205 couples stratified as follow: 51 couples fairly randomly drawn from the civil register of the parish which constitutes the central part of Uppsala; 90 couples who were recommended by the

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random couples as being among the most happily married couples of their acquaintance; 25 separated couples, the total available for interview from a register of legally separated couples; and 39 couples who were named by the "happy" couples as among the unhappiest of their acquaintance. In addition to the 205 "random," "happy," "separated," and "unhappy" couples, 5 husbands and 8 wives were included whose spouses were not available for interview.

The dependent variable in Karlsson's problem is what he calls an index of marital satisfaction. This is presented as an adaptation of Locke's index of adjustment, which in turn is based upon Burgess and Cottrell's adjustment index and Terman's happiness index. Karlsson's index includes such items as expressions of regret at having married the spouse, of agreement about and participation in common interests with the spouse, about the handling of marital disputes, and statements concerning sexual gratification.

Using the "happily married" and the separated couples as criterion groups for high and low marital satisfaction, Karlsson developed weights for the various responses in his index of marital satisfaction. The technique for determining weights is based upon Guilford's adaptation of *phi*. Karlsson found that this index differentiated very reliably between the two sub-samples not used as criterion groups, namely, the "random" couples and the "unhappily" married.

In general, the correlations found by Karlsson between his index of marital satisfaction and various background items parallel those reported in American studies. No association was found between marital satisfaction and the following variables: age of spouses, length of marriage, amount of formal education, social class membership, number of organizations to which one belonged, and presence or absence of children. Whereas American studies have tended to show marital satisfaction to be positively correlated with church attendance and Sunday School attendance, no such correlation emerges in Karlsson's data. (Indeed, Karlsson discovered that a significantly greater proportion of "unhappy" than of "happy" wives attended church regularly.) Equalitarian authority patterns are correlated with marital satisfaction of both spouses, and data suggest but do not clearly show that when the wife takes the lead, there is a tendency for her to be somewhat "unhappy" in marriage. Also consistent with American data are the findings that "happily married" couples tend to report that they have happily married parents, and that

long premarital acquaintance and long engagement are positively correlated with marital adjustment.

Earlier it was noted that adaptability and communication are emphasized in the title and in the theoretical discussion; they do not prove of great value empirically. Karlsson endeavored to test the relationship between adaptability and marital satisfaction. His results on this score were inconclusive. He reports that the more satisfied in marriage tend to communicate more with each other. Whether this is antecedent or consequence, however, remains undetermined.

Relating the index of marital satisfaction as the dependent variable to six independent variables, Karlsson derived coefficients of multiple correlation of .84 for husbands and .91 for wives. Like the index of marital satisfaction, the independent variables are groups of questionnaire items, and they are given the following names: general background, adaptability I, adaptability II, personality traits, communication I, and communication II. Since the coefficients of net regression are based upon standard scores, a notion as to the contribution of each independent variable to the multiple correlations may be formed by inspections. For both sexes "general background" makes the major contribution. The reviewer suspects that if tests had been made, the contributions of "adaptation I" and "communication II" (and possibly of other variables) would have proved non-significant.

Although Karlsson has not done so, he recognizes the need for testing his system of prediction weights on a new sample. Moreover, he explicitly recognizes that his multiple regression equations would result in lower coefficients of multiple correlation on a new sample.

In view of the criticisms which have been levelled at the sampling designs of the American studies, it is very interesting that a somewhat more rigorously drawn sample of a European population reveals such similar findings.

ROBERT F. WINCH

Northwestern University

The Family: A Dynamic Interpretation. By WILLARD WALLER, revised by REUBEN HILL. New York: Dryden Press, 1951. xviii, 637 pp. \$5.25.

Hill undertook a difficult task—that of revising another man's book. In such a situation the reviser wishes to retain the original author's general philosophy and the particular "flavor" he gave the book, but at the same time he must do justice to his own differing em-

phases and perhaps viewpoints. On the whole, Hill seems to have given a creditable performance on both scores.

Waller's Part I in the old edition, on the formation of personality in the parental family, was unnecessarily long (6 chapters), in view of the fact that by the time students take the family course doubtless most of them have studied personality development either in sociology or psychology courses. The revision limits the discussion to four short chapters, but even these residual 40 pages might well have been further reduced, in view of the many demands of other topics. The discussion of college dating retains its distinctive values, but also retains Waller's too-heavy emphasis on its exploitative aspects. The discussion of "The Engagement: a Bridge to Marriage" (a new chapter), is a helpful addition. It meets a distinct need by seeking to show what later functional value the previously-described dating and courtship behavior has, i.e., whether the carry-over is functional or dysfunctional.

The chapters on conflict, adjustment, and success in marriage show much insight. Hill's critique of marital-success studies, based on Kirkpatrick's work, puts a much needed brake on the easy assumption that finding a few "associated factors" in a study or two gives one valid data for a complete marriage guide. The researchers who dig out these associated factors are cautious in their claims; those who appropriate them for teaching purposes should be fair enough not to magnify them into "solutions."

Part V, on parenthood, has been expanded from one chapter into three, which is a definite improvement. It is this reviewer's experience that college students want much more information on the parent-child relationship than most critics of youth would expect. Hill has perceived this need and provided for it. The third of these chapters, entitled "Parenthood: Launching Stage," deals at some length with topics which receive too little attention in most texts.

The bibliography shows good coverage of the literature in the field. There are still other good features of the book which deserve mention, but space does not permit. Readers will find in this revision the chief merits of the original, plus numerous additions of pertinent data and interpretations.

RAY E. BABER

Pomona College

Manpower Resources and Utilization. By A. J. JAFFE and CHARLES D. STEWART. New York: John Wiley & Sons, Inc., 1951. xii, 532 pp. \$6.50.

This volume is an outstanding contribution to the literature. The authors have achieved a rare accomplishment in the population field: they provide stimulating analysis for the vast arrays of facts with which they deal. In so doing they do not reduce the analysis to oversimplified generalizations. Indeed, they make every effort to articulate their findings with sociological theory and with economic theory.

The structure and content of the volume is revealed in the following quotation from the Preface:

This book is organized into three parts. Part I aims primarily to define rigorously the nature of the working force activity about which statistics are being collected, and to explain why that definition, currently employed in the United States, has been adopted. Statistical description of the American working force, both past and present, is the subject matter of Part II. . . . Finally, in Part III, an attempt is made to present the available factual data on the relationship between the working force and the technological, demographic, and social factors of society. This part introduces data from various nations of the world to permit somewhat wider generalizations than would be possible if only the American experiences were reviewed.

This volume will appeal to students of demography for its rich compilation of data dealing with the labor force. Indeed, one might expect that the volume will provide the basis for new courses in the analysis of the labor force. The book will appeal to general sociologists as the most sophisticated effort yet made to analyze and interpret the relationships between technology, economic division of labor, demographic factors, and social structure. By way of example, one might contend that the specialization of industrial sociology has only now found its proper roots in this volume by Jaffe and Stewart. For it is from this volume that one gains the perspective to see man at work as an integral part of the social structure in which he lives. The authors never forget that producing the goods and services of a society is both a product of the social organization and an influence upon it. This two-way relationship is analyzed on the basis of a unique collection of data, important segments of which are newly developed for this volume.

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read and appreciate this volume. For sociologists who are likely to dismiss it as a technical and specialized treatise peripheral to sociological interests, this reviewer would like to urge a reading of Parts II and III, with particular emphasis on the latter. Part III, "The Working Force in Its Social and Economic Context," is a most refreshing advance over the usual treatment of demography and economic institutions in typical sociological texts and courses.

ROBERT DUBIN

University of Illinois

Foreman Training in a Growing Enterprise. By A. ZALEZNIK. Boston: Harvard University Graduate School of Business Administration, 1951. xv, 232 pp. \$3.50.

The growing literature on the "man in the middle" attests to the fact that the foreman is no longer the forgotten man of industry. Zaleznik's book is a significant addition to this growing literature. He set for himself the task of evaluating the impact of a training program on the supervisors in a growing industry. Management's expectation of the training program is first reported. This is followed by a detailed account of the actual training sessions and the expectations which the trainee wished to realize. The attitudes of the trainees toward the program are investigated and related to their life goals and social positions.

The focus of attention is then shifted to a particular foreman, Tony, whose job is to organize the main assembly line in a new plant. Tony's behavior is reported in complete detail, especially as it relates to the emerging pattern of relationships to staff specialists, superordinate, and group leaders. Tony's failure to control the line is diagnosed phenomenologically and objectively. Elements in this diagnosis are Tony's personality attributes especially as they relate to his self conception and life goals, his specific relations to individual staff specialists, bosses, and subordinates. The training conference is then examined for its bearing on Tony's behavior and failure. General suggestions are made to make supervisory training more effective.

Some findings of this little book are important for social scientists. Zaleznik documents in a final way the utter folly of giving factory supervisors academic training in psychological principles with the hope that this will improve their supervision. Such training not only fails in its purpose but may actually confound work relations. He also documents the inadvisability

of using the training program to instill loyalty or inspire confidence toward management. Sociologists will also find the volume useful as a social document, for it contains verbatim accounts of all too typical training sessions, as well as detailed accounts of worker's behavior during the "battle of the conveyor." The analysis of stresses during the manipulation of the assembly line provides perhaps an unintended outlining of a much needed social psychology of the assembly line.

The deficiencies of this work for serious students of industrial organization are considerable. It contains most of the biases and blind spots of the Mayo school. The study begins with no set of principles or ideas to test. So barren is the research design that its conclusions would be considered by most students as premises. Workers are not interviewed. The clinical and case approach are wedded, with the consequence that generalizations are limited to the particular plant. These methods also trap the author into giving either (a) psychological explanations for social phenomena, or (b) contradictory explanations of a single event. Thus "griping" is always interpreted as symptomatic of maladjustments when it may well be a consequence of structural stresses. Again loss of control of the assembly line is attributed to the foreman when it seems clear that responsibility for the line was from the first a group affair. This inability to evaluate behavior of a person in a structural setting is partly due to the insistence of the case-clinical approach that no one else has really studied the same problem before.

WILLIAM H. FORM

Michigan State College

Types of Religious Experience, Christian and Non-Christian. By JOACHIM WACH. Chicago: University of Chicago Press, 1951. xvi, 275 pp. \$3.50.

This book is a collection of articles and lectures together with some unpublished material. It bears the marks of wide reading and painstaking scholarship. It will be of interest to theologians and seminarians but has only marginal contact with the questions which sociologists discuss.

The title will be misleading to some, for only four of the ten chapters are concerned with types of religious experience. One chapter is devoted to a careful and detailed exposition of a book on Islamic doctrine and a similar exegesis of volume on Mahayana Buddhism. Two Christian writers are similarly treated,

Schwenkfeld and a book by Rudolph, one of the author's teachers in Germany.

The sociologist unaccustomed to the trends in the theological seminaries will be confused by the unusual meaning given to the word history. Part two is entitled "History of Non-Christian Religions" but contains only the two chapters above referred to plus a chapter on "The Idea of Man". Part three is called "History of the Christian Religion" and contains only the two articles mentioned above and a chapter on de Tocqueville, proving, as if it needed to be proved, that the author of *Democracy in America* was a believing Catholic.

The explanation of this use of the word history lies in the fact that the earlier interest in Non-Christians which went by the name of Comparative Religions became, for some reason, unsatisfactory, and professors in the seminaries now prefer the title History of Religion. To a layman sociologist the change seems unnecessary and misleading for they continue to set forth comparatively the different religious doctrines and seem to do little that we think of as historical. But it is not for an outsider to criticize the terminology of another discipline.

The author lays down four formal criteria for a definition of religion or, as he prefers to say, religious experience. 1. It is a response to what is experienced as ultimate reality. 2. It is a total response of the total being. 3. It is the most intense experience of which man is capable. 4. It is practical, involving an imperative. One, two, or three of these criteria would not suffice to define a genuine religious experience, all four must be present. The word God is often replaced by the term Ultimate Reality. This leads to certain difficulties, for the author insists that religion is universal and that there are no people, however primitive, without religion. But many preliterate lack some of the four criteria proposed and would thus be excluded from the number of those who have genuine religious experience. This difficulty is met by the proposition that there are *pseudo-religious* and *semi-religious* experiences, and that ought to take care of the exceptions. Not all tribes have "genuine religion".

Still another valid objection to the use of the word history would seem to lie in the refusal of the author to consider the origin of religion as a problem. This would seem to be equivalent to asserting that religion is not historical. Theories of the origin of religion do not interest the author but some notion of a beginning is necessary if we assume that religion has a history. Theories of the origin of the earth, or of the solar system or the

galactic universe, are not ever wholly demonstrable, but our most eminent astronomers have not hesitated to propound them and to support their arguments with elaborate reasoning.

This reviewer has a vestigial connection with theology as a youthful seminarian, and the book was read—most of it—with interest. Whether sociologists without such a background would find it worth while is doubtful. But Prof. Wach did not write for sociologists and the men in his field will undoubtedly welcome it. For the author is a man of sound scholarship, strong personal convictions, and has a charitable and irenic attitude toward those who differ.

ELLSWORTH FARIS

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Dynamics of a City Church: Southern Parish, Vol. 1. By JOSEPH H. FICHTER, S.J. Chicago: The University of Chicago Press, 1951. ix, 283 pp. \$5.00.

The professional friends of Father Fichter who have known about his study of a parish will be pleased with their reading of his first volume.

It is about twenty-five years since Middletown was published. Since then, several community studies have been added. Some have been concerned with over-all community organization; others with a more specialized interest in race relations, ethnic groups, or social classes. About all of these studies, especially the "total" community studies, Father Fichter calls attention to a "curious fact." None of them actually describes or analyzes religious institutions, and they "do not contribute any serious analysis to the purposive inner functions of Catholicism, Protestantism, or Judaism . . ." particularly on the congregational level. In making this observation the author has stated one of the major purposes for describing and analyzing the parish of St. Mary.

The "curious fact" is broader than stated above. We have not been studying religious institutions. Social organization is presumably the field of central interest to sociologists, but the study of religious institutions by sociologists has been neither intensive nor extensive. Apparently it requires almost the completion of a professional career before our generation of sociologists comes to recognize the importance of religious structures, especially the denominational ones. The importance of these institutions in the communities of North America, in the development of personality and the processes of personal adjustment, or in economic or political actions, cannot even

be estimated from the amount of attention given to them in the literature or in course work. It is this general condition of avoidance, for a number of reasons, that will make *Southern Parish* by contrast an outstanding book. It is a well done sociological investigation of an institution, a Catholic parish; a study of the order of Grace making use of and working through the order of Nature.

Southern Parish is located in the American Bible Belt. The Belt, which roughly includes the southeastern region and part of the southwest, is an area of Christian orthodoxy. Protestant fundamentalism is believed and avowed fervently. The area also is usually thought of as rural in character. While the parish is in the Belt, it is not of it, according to some priests of the reviewer's acquaintance and other evidence. Father Fichter recurrently refers to industrial, urban conditions to explain developments in the parish society. It is doubtful if one could from the evidence presented correctly call Southern Parish a "hollow shell of Catholicism," as one priest has described it, but the processes of change and adaptation to urban living apparently are there in rather clear outline. Yet this is an aspect of Southern Parish which has not been demonstrated and made clear in the study. There is only the assumption that in earlier days a closer conformance to the ideals of the church existed. It is, however, possible henceforth to follow such changes more closely through a restudy of St. Mary's some years later.

In general we have little information regarding religious variation among churches of the same denomination. Father Fichter indicates awareness of this problem when he states briefly the considerations to which attention was given in selecting a parish. First, the variation of parishes was so clearly apparent that it was difficult to find one which approximated the criteria of selection; and, second, the variation was so great that the plan to make a comparative study was abandoned. Hence attention was given only to the data of the one unit.

The study achieves remarkably well what it undertook. There is no contribution to techniques or method. It makes use of simple statistical and graphic techniques for handling the data accumulated from hundreds of hours of interviewing, observing, and recording. It is a "pebble picking" job that is reported—numbers attending masses, going to confession, taking communion, or amounts donated to missions, special offerings, and so on. Phenomenologist Robert MacLeod would look approvingly at this research.

Perhaps more than other faiths, Catholic doctrine, ritual, and administration of the order

of Grace lend themselves towards defining ideal types, and then observing how the members of the congregation stand in degrees of sanctity and piety with respect to the ideals of the Church. From the externals observed, inferences are made with respect to conformance. When Father Fichter states that "the supernatural state of any person's soul is open to the scrutiny of God alone," we presume this is his way of saying that "pebble picking" and inferences have some distinct limitations when studying individual purposive behavior and the "inner purposive functions" of the individual's faith.

The Protestant-Catholic conflict of Western Civilization has resulted in each distorting the interpretations of the other's doctrine and practices. It has resulted, naturally, in considerable ignorance about each other; and in more recent years, secularization has resulted in ignorance among many members about their own faiths. For sociologists, *Southern Parish*, along with the *Catholic Encyclopedia*, are important sources of information about one of our major institutional structures. We do not know in what way St. Mary's may vary, but there is still important information about the organization and functioning of the Church. Furthermore, the data are so presented that other parishes can be studied and compared, especially if Father Fichter's other several volumes are permitted to be published.

In a recent issue of *Commonweal*, it is reported that the succeeding volumes of the whole project will not be published unless high Church officials review the issue which has developed, and change their decision. Seemingly, concern has arisen in the local parish that confidences of the church were violated in the study, but to an outsider there is little evidence that Father Fichter failed to observe scrupulously the ethics of social investigation. The reviewer is Protestant and considers this report by a Catholic priest, qualified by a Ph.D. from Harvard University, an important contribution to the sociology of religion. It is highly informative. It represents careful analysis. To withdraw permanently from publication the remainder of *Southern Parish* will result in an important loss to social science and, it would seem, to the Catholic Church.

FORREST E. LAVIOLETTE

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American Urban Communities. By WILBUR C. HALLENBECK. NEW YORK: Harper and Brothers, 1951. xi, 617 pp. \$6.00.

The underlying orientation of this recent text is one of action: "... the citizens of any com-

munity can, within limits, make of that city what they will" (p. 8). This emphasis reflects the author's active participation in adult education, city planning, and urban research, especially policy-linked investigations. It also grows out of the implications he sees in the application of biological ecology to the human community: "Men need to replace the naturally established climax communities [i.e., stabilized plant-animal communities. W.T.M.] which they have invaded and destroyed as well as the inadequate communities which have developed . . . with *administered communities*" (p. 103). While much of this presentation is suggestive the conception of the city as a "biological community" (p. 97) and a "social organism" (pp. 262-264) is certain to renew old controversies.

Professor Hallenbeck's rejection of the "ecological school of sociologists" (p. 97) appears to be the basis of his failure to interrelate more explicitly the various aspects of the functional community: specialization of function, differentiation of land use, form and structure of the city, and integration of the metropolitan area around the dominant center. A consistent use of structure-function analysis and location theory would have been more effective than organismic conceptions in demonstrating this basic interrelatedness. While considerable pertinent material is treated as "social geography" some of the most useful of the urban ecologist's conceptual tools are either absent or inadequately treated, e. g., centralization, segregation, invasion-succession, and the general theory of location whether in reference to cities, retail outlets, industries or residences. The sector theory (with no mention of Hoyt) and the multinuclei scheme of urban structure are inexplicably separated by nearly four hundred pages from the concentric zone hypothesis. The population of the unincorporated fringe is not discussed. Class structure is dealt with in less than three pages. Bare mention or none at all is accorded Davie, Dickinson, Firey, Hawley, Hoyt, Hurd, Schmid, Queen, Quinn, and others recognized in the urban field. With a distinguished sociologist as editor of the series, it is surprising that well buttressed theories from the sociological literature are not more effectively utilized.

In spite of these weaknesses *American Urban Communities* is a useful text for classes not concerned with the implications of urbanism as a world-wide phenomenon. It should have student appeal: it reads easily, the format is good, and the author's interest in his subject matter is contagious. Interesting original material is included, and good use is made of census data, statistical tables, and maps. A

number of chapters are quite good; the structure-function analysis of the family, for example, is particularly appropriate for this type of text. While the text leaves much to be desired as either theoretical or applied sociology, the compensating features should insure rather wide adoption.

WALTER T. MARTIN

University of Oregon

Reader in Urban Sociology. Edited by PAUL K. HATT and ALBERT J. REISS, JR. Glencoe, Ill.: The Free Press, 1951. x, 714 pp. \$5.50.

The editors of this *Reader* have performed a valuable service for teachers and students by bringing together more than fifty articles on city life, many of which ordinarily are not available for use in large undergraduate classes. Where two articles of equal merit were examined, the editors favored the one that seemed less accessible. They purposely endeavored to select articles that discuss characteristics of the city as a whole, and to exclude those that apply only to limited aspects of social life which occur within the city but are not distinctively characteristic of it. On the whole, the editors made good choices of readings to be included.

The articles are organized into nine sections, dealing respectively with general characteristics of the city, its growth and natural history (two sections), its internal spatial pattern, demographic characteristics, class and status structure, institutional structure, personality, and urban planning. Each section is introduced by a short explanation of the nature of the unit as a whole and of the separate readings within it. The editors view the nine sections as affording satisfactory general outline for a course in urban sociology. The present reviewer has no serious quarrel with this outline, but he wonders why a course in *sociology* should include two separate sections on city growth, one of which is predominantly historical.

In any field where an extensive literature exists, different persons may properly have contrasting preferences as to readings. For this reason, many readers of this volume will not be wholly pleased with the editors' selections. For example, the reviewer would prefer to include additional materials on the internal spatial pattern—such as materials by Hoyt on residential neighborhoods, by Bartholomew on urban land uses, by Haig and McCrea on distributions of industries, or by Schmid on various aspects of Seattle and the Twin Cities; and he would have omitted some of the articles on "natural history." The editors should not

be severely criticized, however, for failing to follow the personal preferences of any individual reader.

The volume exhibits some minor faults which do not seriously detract from its value, and which possibly reflect only the character of the literature from which it was drawn. For example, certain of the readings cover several topics and might logically be included in two or three of the sections. Only by splitting such articles into smaller parts (which might decrease their effectiveness) can a tight theoretical organization of the book be obtained. Again, the section on institutions, although the longest in the book, does not provide adequate coverage of all parts of this field, possibly because sufficiently succinct discussions of some aspects of urban institutions have not yet been published.

JAMES A. QUINN

University of Cincinnati

The Sociology of Urban Life: A Textbook with Readings. By T. LYNN SMITH and C. A. McMAHAN. New York: The Dryden Press, 1951. xiii, 831 pp. \$5.50.

This handsome, double-columned book is divided into eight major parts (introduction, nature and development, population, structure, institutions, processes, disorganization and welfare, and conclusion), 25 chapters, and 73 separate essays or articles. Each chapter's essays are preceded by a brief introductory statement, and followed by "Problems and Projects" as well as by "suggested" and "supplementary" readings.

The 73 essays are the works of 56 different authors or groups of authors. Although there is nothing new in terms of general orientation, a few of these essays are excellent and appear in textbook form for the first time. About twelve articles are only indirectly relevant to urbanism and appear to be included for the student with no prior preparation in sociology. Seven of the 73 essays were especially prepared for the volume, and four are previously un-

published manuscripts. These last four, and 12 of the total number, deal wholly or in large part with the South. Of the new material the student of urbanism will welcome McMahan's "Personality and the Urban Environment," a summary of studies to date, and F. L. Hauser's "Ecological Patterns of European Cities" which treats of London, Paris, Vienna, and Stockholm. Preceding the subject-name intermixed index is a bibliography of 382 items which contains most of the significant contributions in the field.

The unfortunate date of publication, responsibility for which must be shared by the publisher, is reflected in the fact that almost all of the population statistics (pyramids, rates, ratios, etc.) are based upon the 1940, and in some instances even the 1930, census reports. In view of the acute changes occurring during the last decade this is not a minor weakness. Absent, even from the index, is any mention of suburban factors, and the ten page final chapter is but a gesture in the direction of city planning.

In the reviewer's opinion the compilers of this book are more accurately described as "editors" than as "authors." The volume is one of a growing number of books wherein the names on the title page and cover bear relatively little relationship to the authorship of the bulk of the content. Of the 73 essays only 20 are written by Smith and McMahan, and ten of Smith's 14 articles are from his previous publications. One reads in the "Preface" that, "The original discussion, prepared by the authors, is intended neither as a mere introduction nor as an adequate treatment of all aspects of the subject." Their intentions are fulfilled, because these prefatory remarks cannot stand by themselves, yet they make the selections that follow appear repetitious, and they in no way make a *text* of the heterogeneous readings. As judged by this effort, the task of combining "text and readings" is not likely to be crowned with success.

RICHARD DEWEY

University of Illinois

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